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AN ANTHOGRAPHY OF THE EUCALYPTS

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BY

RUSSELL GRIMWADE

B.Sc. (Melb.)

WITH 79 PLATES

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PREFACE

THIS book is intended to assist in the identification of species, to awaken fresh interest, to stimulate research, and to promote cultivation of the Eucalypts. If it attains these aims, and attracts more serious attention to the commercial and æsthetic value of our forests, its purpose will have been fulfilled. Horticulturists, farmers and "people on the land" generally, will, it is hoped, find guidance in selecting species for cultivation, whether for scenic, horticultural or utilitarian purposes.

To gain some personal insight into the grouping of Eucalypts the author undertook a series of photographic delineations. Practically all the species usually met with in Australia are illustrated and described, briefly, but with sufficient detail to facilitate their identification.

Amongst factors that contribute to a positive identification of species are habit, bark, leaves, leaf-stalks, timber, opercula, flowers, fruit and seedlings. All these must be reviewed to establish the identity of any specimen; in few cases, if any, can one factor alone be considered sufficient. Present-day analysis of the genus is comparative only, and every available character must be considered. It has not been possible to represent all the factors in these pictures; but an effort has been made to show leaves, unopened buds, flowers and fruit. Artistic effect has been subordinated to accuracy. The description given with each plate is intended to supplement the information conveyed by the photograph, as well as to supply clues to identify that cannot be recorded in a monochrome print. Emphasis is also laid on unmistakable and unique characteristics.

To Mr. J. Cronin, Director of the Melbourne Botanic Gardens, by whose courtesy many specimens have been made available, the author pays appreciative tribute; and to many other lovers of our trees, who by their timely assistance in collecting specimens have made possible this compilation, grateful acknowledgment is made.

As for Mr. P. R. H. St. John, of the Melbourne Botanic Gardens, adequate recognition of his work is hardly possible. Under his willing tutelage one learns to admire an enthusiasm equalled only by his knowledge. No effort is unworthy, no sacrifice too great for him, if thereby he can advance the subject he knows so well and loves so dearly. Though it can never fully discharge the debt due to him, this measure of thanks is offered in return for many hours, days and years of happy interest.

RUSSELL GRIMWADE.

MELBOURNE,
August, 1920.

AN ANTHOGRAPHY OF THE EUCALYPTS

I

On January 26, 1777, H.M. Ships *Resolution* and *Discovery,* carrying Cook's third expedition into the Pacific Ocean, dropped anchor in Adventure Bay on the south coast of Tasmania, not many miles from where Hobart now stands. Among those on board were William Anderson, the naturalist, and David Nelson, his assistant. To these two men belongs the imperishable distinction of having introduced to the knowledge of the civilized world the first member of the wonderful genus now known as *Eucalyptus.*

William Anderson had accompanied Cook's second expedition (1772-75) in the capacity of surgeon; there can be little doubt that he then noted these trees as the dominant component of the vegetation, for he used the generic name *Aromadendron* to distinguish them. It was, however, from a specimen collected by David Nelson in 1777 that the genus was first botanically described; this was done in 1788 by L'Herétier, who gave it the name it will always carry. To the tree from which this particular specimen was taken L'Herétier gave the specific name of *obliqua,* in apt reference to the unbalanced growth of the leaf on either side of the midrib. This character was subsequently found in many species of the genus; but few have this "kink" more markedly or more constantly developed than *obliqua,* which is the famous "Messmate" or "Stringybark" of eastern Australia.

In 1814 the generic name *Eudesmia* was coined by Robert Brown, but priority demanded the retention of the established name.

The name *Eucalyptus* is admirable alike in euphony and conception. It has a noble sound, and by its derivation connotes a rare character possessed by few other trees. The actual bloom of the *Eucalyptus* is surmounted by a lid or "operculum," which seals the flower until thrown off in the process of opening; the reproductive organs of the tree are then exposed for the process of fertilization. By this "lid" the essential organs are so well covered as to justify a generic name derived from the Greek εὖ "well," and *καλυπτω* "I cover." These opercula vary within the widest limits in respect of size, shape and character. But, whether in forest giant or stunted mallee, the operculum is ever present, and unmistakably distinguishes this genus of trees.

II

The natural distribution of the Eucalypts is practically confined to Australia; apart from those species to be found in the islands of the Austro-Malayan group the genus does not occur elsewhere, not even in New Zealand or in the islands of the Pacific. In Australia and Tasmania it probably forms three-quarters of the natural forest, and presents itself in forms as diverse as the climates it enjoys.

From tropic to sub-temperate zones, from sea-level to an altitude of 5,000 feet, with ten inches or less to ten feet or more of annual rainfall, from clefts in rocky sandstone to luscious loam—everywhere, certain members of the genus persist.

Among them are some of the tallest trees in the world; but the forest giant of three hundred feet and more is full brother to desert dwarfs little higher than a man. Some yield timber of great beauty and usefulness, some are only fit for firewood; some yield honey, some oils possessing fragrance or medicinal value; some produce flowers unexcelled in form and colour. They are, indeed, a race of trees apart, and in their variety, utility and adaptability have no compeers on earth.

No other genus affords a tithe of the variety, interest and inspiration of the Eucalypts, of which at present over two hundred and fifty species are recognized and recorded with scientific accuracy. Only one other known genus—*Acacia*—numbers more species than *Eucalyptus,* and Acacias are of many nationalities.

III

The settlement of Australia in 1788 introduced botanists to a virgin and uncharted continent of vegetation, and the student of to-day must admire the amount and accuracy of the work of the early botanists. Scientific observers were on the new field at once, collecting facts for classification; whilst specimens and seeds were distributed abroad with surprising celerity. The genus *Eucalyptus* was remarkably defined and easily recognized. Attention appears to have been concentrated since then on the subdivision of the genus into natural sections, so that orderly and precise arrangement might prevail. A hundred years ago or so this object probably seemed easier of attainment than it does to-day. The known facts, being fewer then, permitted simple subdivision; this was first attempted on the basis of one feature only—the operculum being selected as the distinguishing character—and later, the leaves and leaf-stalks. Subsequently Bentham founded an elaborate system on the morphology of the anthers. This was followed by von Mueller's classification of the barks, in which the genus was divided into six groups—smooth, box-like, wrinkled, stringy, iron-bark, and scaly. The deficiencies of this system were again made manifest as field-knowledge of the trees became extended, for it was found that trees, which by other standards of judgment are undoubtedly identical, developed dissimilar barks on different soils.

It has, therefore, come to be recognized as essential to the establishment of the identity of a species that all individual characters of the specimen should be judicially taken into account. The character of any single part—of the bark, for instance—may narrow the choice of species considerably; beyond that point discrimination cannot be made without reference to some other part—operculum, seed or seedling. Barks are important; but probably the ripened fruits are relied on more often than other characteristics to determine the species.

A more recent attempt at classification has been developed by Baker and Smith, who ingeniously employ the character of certain tree-products as a means of diagnosis. The leaves of all Eucalypts contain more or less essential oil, which is easily separated by steam distillation. The yield of oil, its composition and its physical constants, vary within limits sufficiently great to suggest a possible basis for the discrimination of species. The authors of this system claim that these features are constant amongst trees of similar species, and produce much supporting evidence gleaned from a vast amount of patient analytical work. Such features as the tannin and kino—commonly called "Gum"—in the bark are also made use of, and support the theory. It is unfortunate that the innovation of supplanting botanical morphology by chemical analysis involves time and skill beyond the reach of all but a few. It is conceivable, however, that in the future the collaboration of botanist, chemist and physicist may be needed to determine with certainty the identity of a species. Some would include a geologist also. In despair one satirist has declared that classification can only be made alphabetically.

An easy road to the grouping of the Eucalypts has yet to be discovered. There is no infallible rule. The vast areas they occupy, and the difficulty of collecting specimens from trees that tower three hundred feet into space from rugged mountain sides, are only two of the many causes that delay the winning of a full knowledge of the genus. But every day bricks of facts are added to the structure; if the rate of building overtakes the progress of evolution, it will some day be complete. Then, and not till then, will the riddle of the Gums be answered.

IV

Any categorical arrangement of the species being thus inaccurate and misleading, the illustrations are presented in geographical order.

If one were to start a long journey in the north of Queensland, and travel round the coast in a southerly and then westerly direction, the Eucalypts would be encountered more or less in the sequence here maintained. But such a system can be applied in a general sense only, as, whilst some Gums have a restricted habitat, others extend for thousands of miles and enjoy the freedom of three or four States.* It is necessary to digress from Victoria to Tasmania, and return thence to South Australia.

*The true Red Gum (*E. rostrata*) occurs in every State except Tasmania.

This imaginary journey at once impresses on the mind the adaptability of the genus in accommodating itself to such a range of climate and country. Moreover, it reserves to the last the wonderful varieties of Western Australia. In whatever sense the Gums be valued, whether for their utility or their horticultural value, those of Western Australia are in the front rank. Among them are the Jarrah, world-famous for its endurance; Rose of the West, a small thicket tree with silver-grey leaves and a large rose-coloured flower; and *E. ficifolia,* that gorgeous lawn tree so popular in the eastern States.

V

The natural proclivity of the Eucalypts to develop species very slightly different in character is reflected in the vernacular names by which they are known. It is easily understandable, when trees of various species are so similar, that they should share the same common name. "Box," "Stringybark," "Blue Gum" and "White Gum," for instance, mean very different trees in different places. "Red Gum" in the eastern States is *E. rostrata,* the noble smooth-barked tree that lines our water-courses and has deep red timber: "Red Gum" in Western Australia is *E. calophylla,* a rough-barked white-timbered tree that exudes a characteristic red gummy matter from the fissures of the bark. At least four States have a Blue Gum. In Tasmania it is *E. globulus,* in New South Wales *E. saligna,* in South Australia *E. cosmophylla,* and in Western Australia *E. megacarpa.* There is a similarity between these species as regards trunks and general appearance, but it disappears entirely when one compares their flowers and fruits. Some of the rarer species, known only to botanists, have no vernacular name at all.

The nomenclature of this book is based on the following principles:—

i. The names of all Victorian species have been given in accordance with the decisions of the Victorian Plant Names Committee, which has in recent years reviewed and condensed the rather chaotic list of names in common use.
ii. In the case of widely-distributed species, known by a host of names in a number of localities, an endeavour has been made to select the name most appropriate to the character of the tree and least likely to confuse it with other species.
iii. Preference is given to native names over the hyphenated names which some writers favour.

The reader is advised to study and commit to memory also the botanical names; he will thus become accustomed to the idea that they are really distinct—and an appropriate vernacular name, emphasizing the distinction, may gradually be attached to each of them.

VI

The leaves of the Eucalypts are in themselves a subject of study. What may be termed a typical leaf is long and narrow, tapering to a fine point. Yet there are species which have broad oval leaves, while others have them as narrow as a blade of grass. The foliage of young trees and "sucker" shoots is, in the great majority of cases, entirely different from that of the mature trees. A complete metamorphosis often takes place in a season or two—generally within the first few years of growth, and generally from the top of the tree downwards. As this change takes place gradually, there is a stage when the tree presents both forms of foliage at the same time, and appears to be passing from adolescence to maturity.

Seedling leaves are lanceolate, oval or round, and generally set on branchlets opposite to one another, frequently without stalks. The mature leaves have decided stalks, and occur alternately on the branchlets. As if to maintain a repuation for "fixed irregularity" (or "irregular fixity") some few species undergo no change, but retain throughout life the stalkless leaves of youth. Some leaves are thin and flexible; others are leathery and rigid; some are equally coloured on both sides; others bright above and dull below. The veining of the leaves varies with the species, and the system appears to be connected with the character of the essential oil. Many leaves are set pendulously on the branches—which accounts for the fact, early noted, that Gum trees cast little shade compared with trees whose leaves are more or less horizontal. The variety of foliage is as great as the variety of flowers or barks, and ranges from a leaf like that of a young cabbage to one two inches wide and two feet long—from dark shining green to glaucous silver grey—from opalescent blue to brilliant red. On very rare occasions do some trees show a variegated leaf.

As with the leaves, so with the flowers. The vast majority are white or cream, but there are blooms of all shades in reds and pinks, varying to green and yellow.

The colour of the bloom cannot be taken as fixed. A few coloured species show no evidence of change, and breed truly from the parent tree; others are quite uncertain, and even change the colour of the flower during their growth. Our acquaintance with the Eucalypts has not yet produced sufficient data to formulate the law governing this feature, or to ascertain whether climate, soil, environment, traumatism, heredity or hybridism causes seeds from a highly-coloured flower to produce sometimes trees bearing flowers of as high a colour, sometimes trees whose flowers are colourless. There must be some law correlating cause and effect, but so far the evidence is insufficient even to suggest a working hypothesis. Scores of observations record an acquisition of colour, and as many a loss of colour, in the succeeding generation. Many flowers are small and inconspicuously set; but degrees of prominence and abundance are met with that culminate in a wonderful blaze of inflorescence. In characteristic paradoxical fashion, the largest species have, as a rule, the smallest flowers. Also, the higher the leaf on the tree the smaller it is.

Certain it is that the largest trees have the tiniest seed.* The old aphorism that "Great oaks from little acorns grow" loses compass with the contrast that some Gums provide. Monarchs like *E. regnans,* that tower erect for over a hundred feet without a branch, that shake the earth when they fall and provide enough timber to build a house, are born of a seed little larger than a full-stop on this page.

VII

The economics of the Eucalypts, a field of study both important and vast, cannot be dealt with in a book of this nature. For that reason reference to the tree-products of the different species has been usually omitted. It is fitting, however, to allude here to their variety, as another and a most important reason for soliciting the regard and respect of the people whose property they are. The greatest tree-product is timber, and in this the genus is unique. None of them yields what is technically known as "soft" wood; but for hard-woods or cabinet-makers' timbers no genus can compare with them. For every use of the art-craftsman, and for almost every structural and industrial purpose, there is a suitable timber yielded by one or other species of the genus. The furniture-maker has choice of woods pale or dark-coloured, straight-grained or highly-figured; the architect and engineer have timbers for use above and below ground, all of an inherent strength and quality that place them first in the lists of comparative tests. The applications of Eucalypt timbers are innumerable in every sphere of commercial activity, and are certain of great extension as experience gains for them the rational and scientific treatment they deserve.

Every species of the genus contains in its leaves more or less essential oil, the character of which is peculiar to the species, and gives it a commercial value for purposes ranging from medicine to the highest expression of the perfumer's art. Some of the barks yield fibres industrially applicable; some kinos, of more limited usefulness at present, but of such promise that they amply warrant extensive scientific research. Moreover, research into the rate of growth of various species (which involves the amount of cutting allowable) and into the special fitness of each for forest or plantation purposes is still needed. But all this necessitates a statesmanlike control of our timbered areas that in the past has been conspicuously absent.

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*A pound in weight of *E. Macarthuri* seed was counted and found to contain over half a million potential trees.

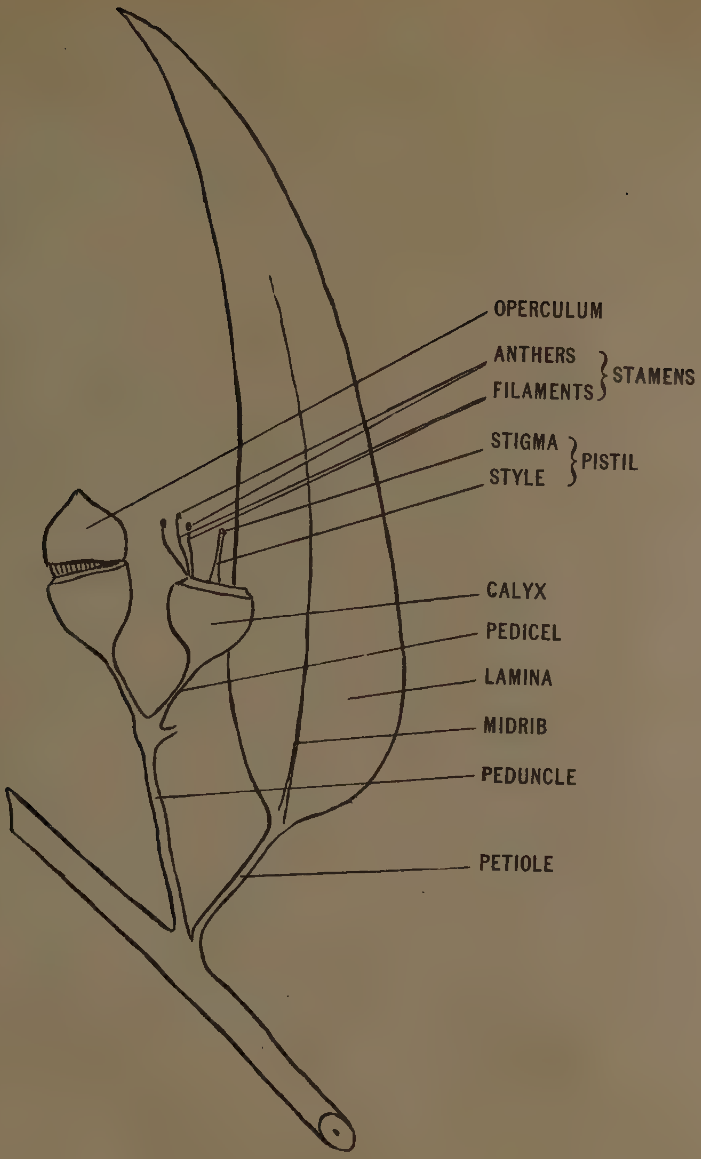
GLOSSARY

(Partly to be terse in description, partly to conform to botanical practice, certain technical terms have been used in the text instead of their more usual popular synonyms. A list of them, with their meanings, is appended.)

ACUMINATE - - -	Pointed.
ACUTE - - - - - -	Tapering towards a point.
ALTERNATE - - -	Occupying every second place.
AXILLARY - - -	Occupying the angle between leaf and branch.
CALYX - - - - - -	Flower-cup.
CAMPANULATE - -	Bell-shaped.
CLAVATE - - - -	Club-headed.
CONNATE - - - -	Growing together at the base.
CORDATE - - - -	Heart-shaped.
CORIACEOUS - - -	Leathery.
CORYMBOSE - - -	With branchlets or flower-stalks arising from different points on one stalk to form a level head.
CRENATE - - - -	Notched.
DECORTICATING - -	Dropping off (of bark).
EXSERTED - - -	Standing out.
GLABROUS - - - -	Smooth, without hairs.
GLAUCOUS - - - -	Blue-grey in colour.
INSERTED - - - -	Set inwards—opposite of "exserted."
JUVENILE - - - -	On seedlings or sucker-shoots (of leaves).
LANCEOLATE - - -	Long, narrow and tapering at both ends.
LATERAL - - - -	Growing from the side of the branchlet.
LENTICULAR - - -	Shaped like a lense, bi-convex.
MATURE - - - -	On full-grown plants or trees (of leaves).
MUCRONATE - - -	Sharply pointed.
OBCORDATE - - -	Heart-shaped, with the apex at the stalk-end.
OBOVOID - - - -	Egg-shaped, with the broad part furthest from the stalk.
OBTUSE - - - -	Blunt or rounded at the extremity.
OCELLATE - - - -	Like an eye.
OPPOSITE - - - -	Growing in pairs.
OVATE - - - - -	Almost oval, but broader towards the base.
OVOID - - - - - -	Egg-shaped.

Panicle	Stalk divided into branchlets each bearing one or more flowers.
Pedicel	Small stalk bearing single flower.
Peduncle	Fruit- or flower-stalk.
Petiole	Leaf-stalk.
Pilular	Shaped like a pill, small and globular.
Pyriform	Pear-shaped.
Rostrate	Shaped like a bird's beak.
Sessile	Stalkless, attached directly to branch.
Stellate	Radiating in the form of a star.
Terete	Cylindrical.
Tesselated	Chequered.
Truncate	Lopped off.
Turbinate	Shaped like a whipping-top.
Umbel	A group of flowers radiating from a centre.
Umbonate	With a boss like a shield.
Uncinate	Hooked.
Undulate	Wavy
Urceolate	Shaped like a pitcher.
Verrucose	Warty.

These terms can be used in combination also. Thus "ovate-lanceolate" means "oval but tapering towards the ends"; "truncate-ovoid" means "like an egg with its top knocked off"; "lanceolate-acuminate" means "tapering to a very sharp point."



A TYPICAL EUCALYPTUS FLOWER

ANGOPHORA INTERMEDIA

Gum-myrtle

HABITAT - - Well distributed over New South Wales, Queensland and Victoria.

This tree, taken as representative of its genus, is in the scale of evolution perhaps the immediate ancestor of the genus *Eucalyptus.* It differs from the Eucalypts only in not possessing an operculum, instead of which it has petals and sepals.

PLATE 1

E. CREBRA

Narrow-leaf Ironbark

HABITAT - - Northern Australia, Queensland and New South Wales.
BARK - - - Dark, rough and persistent.
LEAVES - - - Linear-lanceolate, acuminate (often mucronate), equally dull on both sides.
OPERCULA - - Short conical or obtuse.
FLOWERS - - Three to six on short pedicels; peduncle terete and slender.
FRUIT - - - Small, hemispherical, four or fewer; often three-celled, contracted at rim.

PLATE 2

E. CITRIODORA

(*Syn.* E. MACULATA, *var.* CITRIODORA)

Lemon-scented Gum

HABITAT	Queensland.
BARK	Smooth and whitish.
LEAVES	Long and lanceolate, emitting a strong lemon smell when crushed. Smooth, but not shiny.
OPERCULA	Almost hemispherical.
FLOWERS	Not at all prominent; stamens very white.
FRUIT	Large in comparison with the calyx tube; truncate-ovoid or truncate-globular.

This is a much cultivated species, and thrives well in any Australian climate. The clean, fresh trunks of silvery grey generally tower above the surrounding foliage, and are of great beauty either as specimen trees or in plantations.

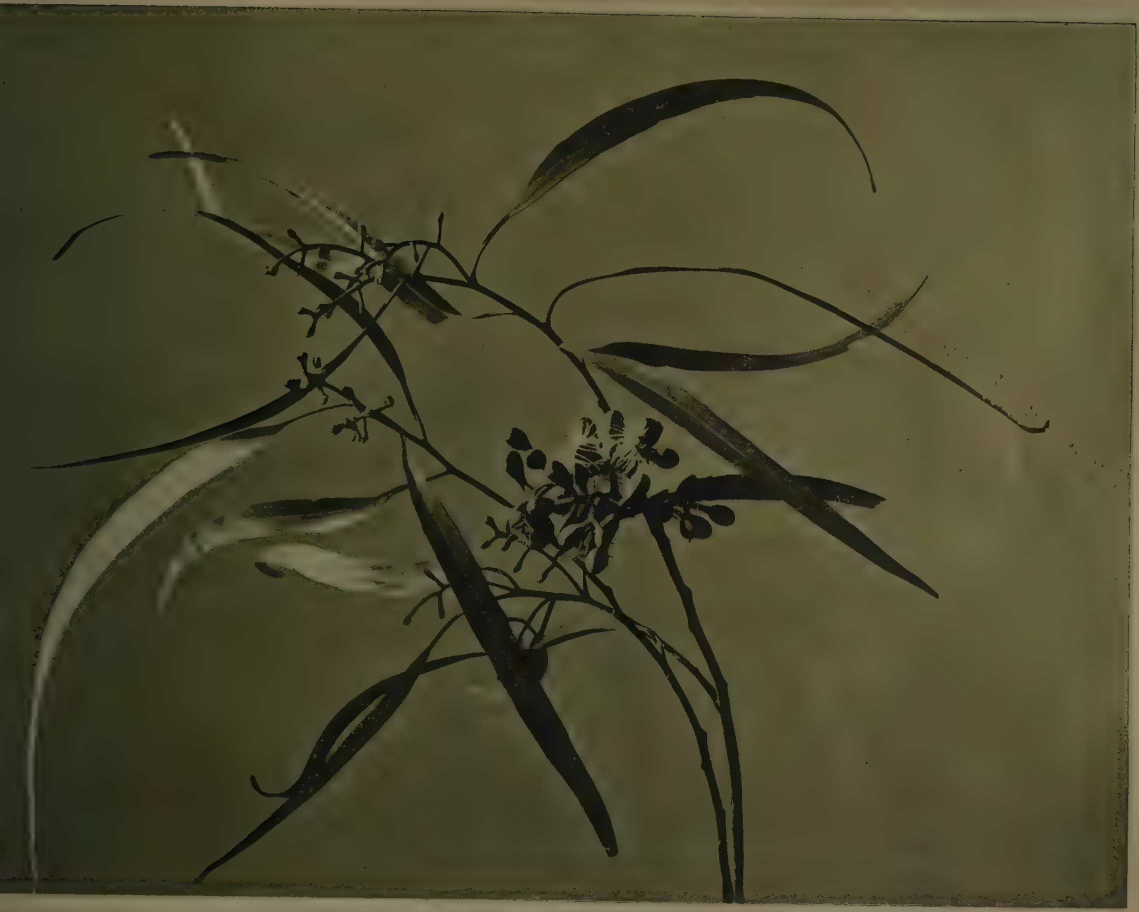


PLATE 3

E. MICROTHECA

Coolabah

HABITAT - - -	Arid inland regions of Western Australia, South Australia, New South Wales and Northern Australia.
BARK - - -	Dark and rough on the trunk, smooth and whitish on branches; in some forms smooth and white all over.
LEAVES - - -	Lanceolate, paler below than on upper side.
OPERCULA - -	Short conical, and acuminate.
FLOWERS - -	Three to six on short, terete peduncle.
FRUIT - - -	Small and hemispherical with exserted valves, four-celled (occasionally five-celled).

On the bark of one of this species Burke and Wills read the tragic message by which they learnt that they were abandoned in the desert.

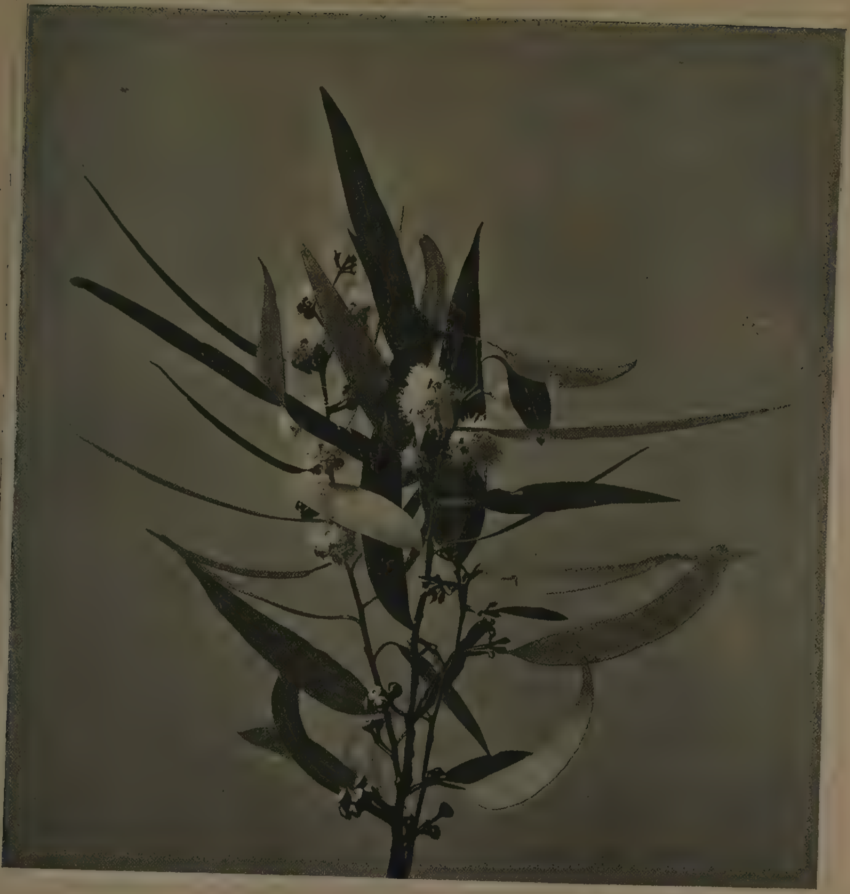


PLATE 4

E. MELANOPHLOIA

Silver-leaf Ironbark

HABITAT - - -	Dry districts of Northern New South Wales and Queensland.
BARK - - -	Black, persistent and deeply furrowed.
LEAVES - - -	Silver-grey and glaucous; sessile and opposite in some forms, in others lanceolate and on petioles.
OPERCULA - -	Conical and pointed.
FLOWERS - -	White, small, three to six on long peduncle, forming terminal panicle.
FRUIT - - -	Hemispherical with narrow, sharp and contracted rim.

This is one of the few species that often retains to maturity the stalkless leaf of its youth.

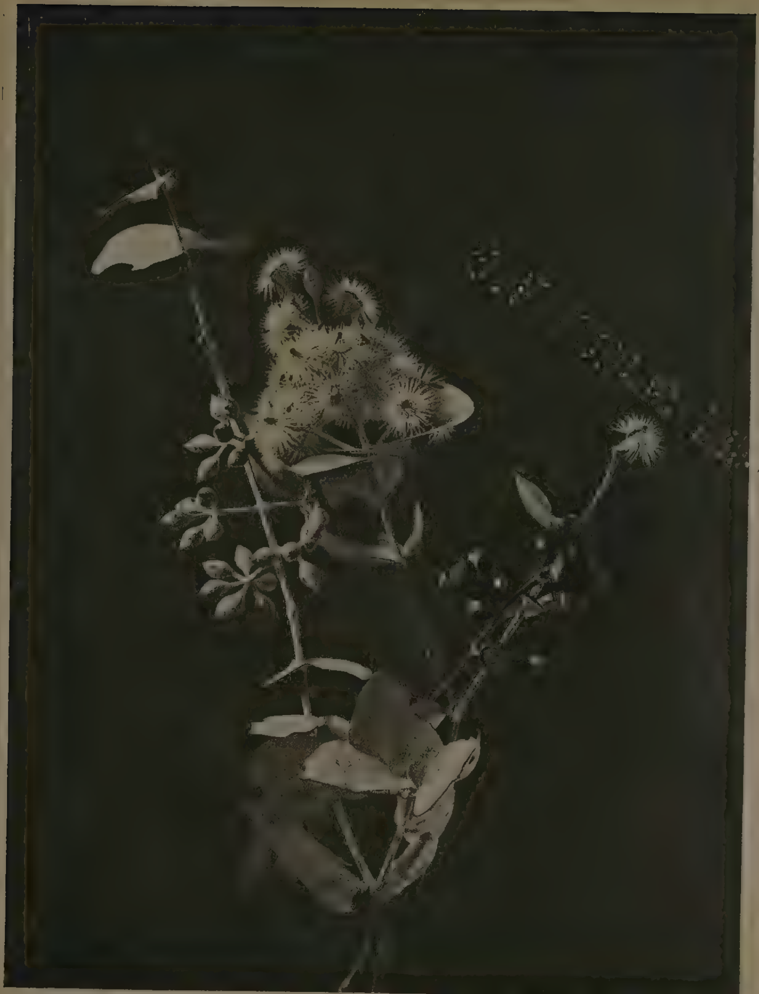


PLATE 5

E. LEPTOPHLEBA

(*Syn.* E. DREPANOPHYLLA)

Yudhulwan

Habitat - - Queensland.
Bark - - - Dark, rugged and persistent; tesselated.
Leaves - - - Lanceolate, broadest below middle.
Opercula - - Acute-conical, long.
Flowers - - Small, with slender pedicel and peduncle.
Fruit - - - Elongate-ovoid; valves exserted.

PLATE 6

E. MICROCORYS

Tallow-wood

Habitat - - New South Wales and Southern Queensland.
Bark - - - Fibrous.
Leaves - - - Lanceolate, paler on the underside than above; myrtle-like in appearance.
Opercula - - Hemispherical and umbonate.
Flowers - - The buds are long and clavate, and are arranged in groups of four to eight on a long slender peduncle.
Fruit - - - Small, obovoid-oblong; flat-topped valves level.

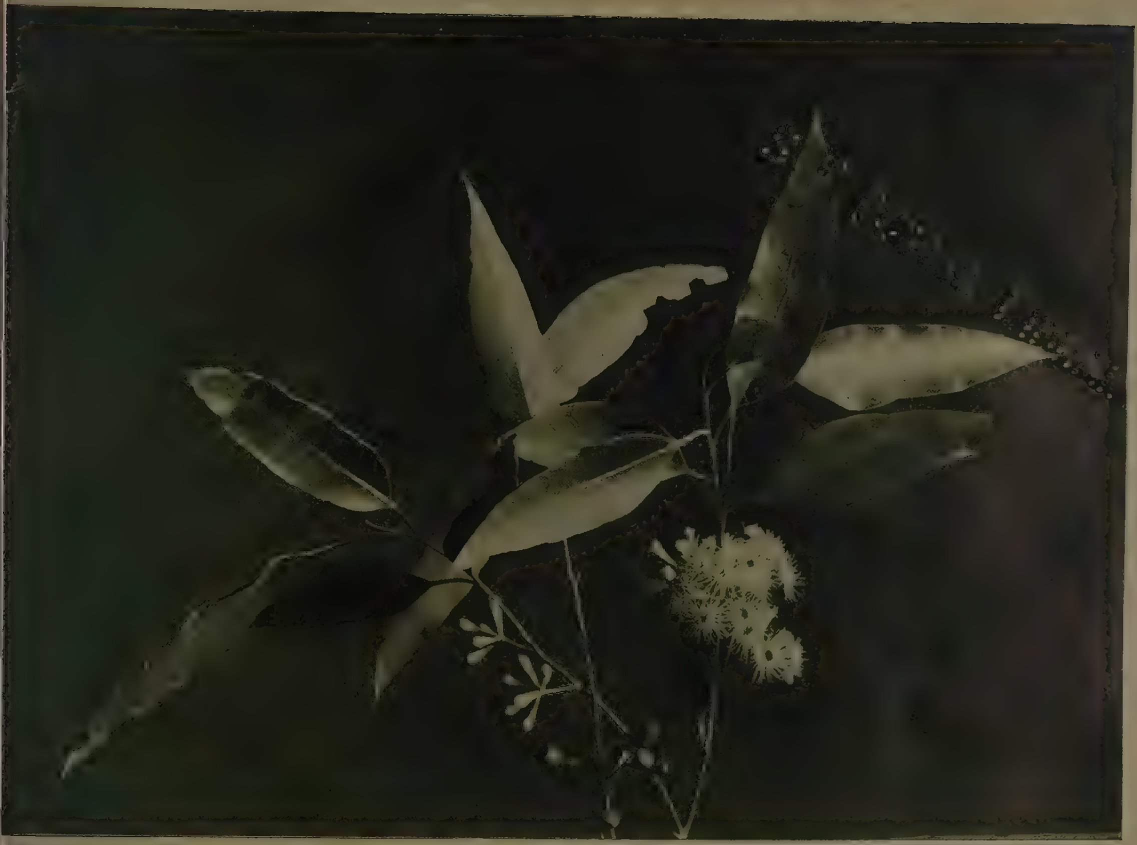


PLATE 7

E. PLANCHONIANA

Porcupine Stringybark

Needlebark

Habitat - - Northern New South Wales and Queensland.
Bark - - - Stringy.
Leaves - - - Lanceolate, falcate and thickish.
Opercula - - Obtuse-conical.
Flowers - - Three to seven, greenish; with thick, short pedicel on long flattened peduncle.
Fruit - - - Truncate-ovoid and ribbed; valves inserted.

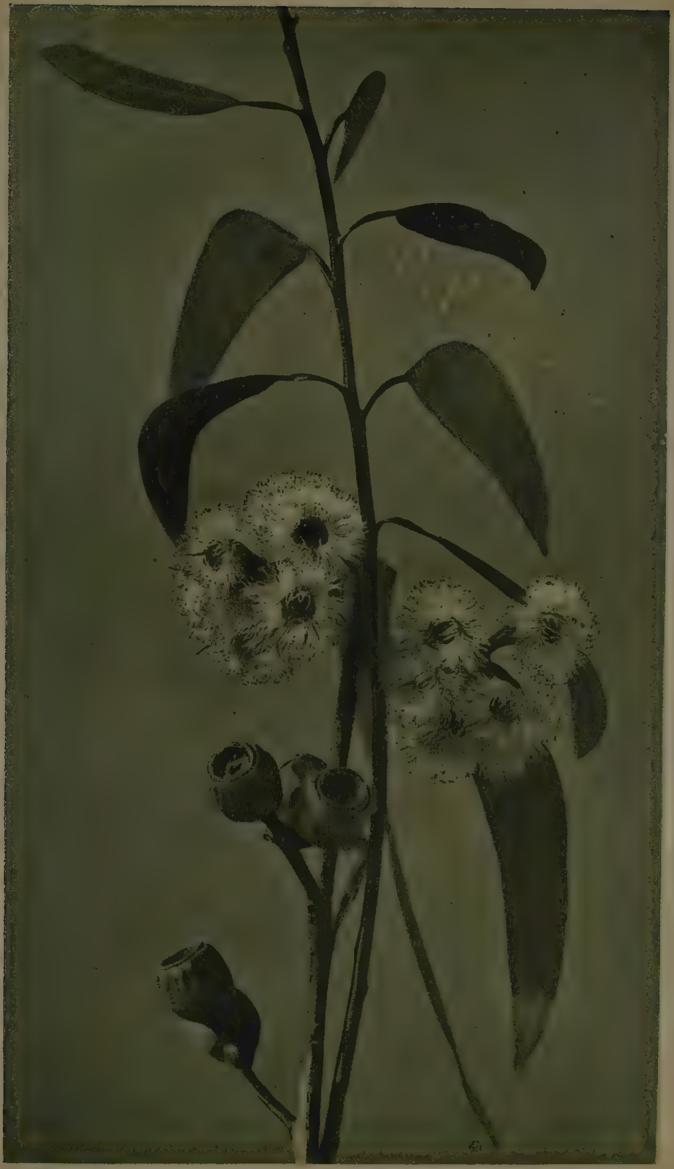


PLATE 8

E. MACULATA

Spotted Gum

Habitat	Queensland, New South Wales and, rarely, Victoria.
Bark	Smooth and mottled.
Leaves	Lanceolate-falcate.
Opercula	Equilateral-conical, acuminate.
Flowers	Up to five on short thick peduncle.
Fruit	Ovoid-urceolate; valves usually three (rarely two or four), short and deeply sunk.

PLATE 9

E. BOTRYOIDES

(*Syn.* E. PLATYPODOS)
Mahogany Gum
*Bangalay**

HABITAT - -	Victoria, New South Wales and Queensland.
BARK - - -	Persistent on the main branches and heavily furrowed at the base.
LEAVES - - -	Lanceolate-acuminate; margin of leaf often undulate, very like those of *E. robusta.*
OPERCULA - -	Conical, obtuse and shiny.
FLOWERS - -	Lateral and axillary, four to ten on a thick flattened peduncle. without pedicels.
FRUIT - - -	Conical, semi-ovoid; valves slightly exserted.

A great plantation species, valued for its adaptability and rate of growth.

* Pronounced Bang Alley.

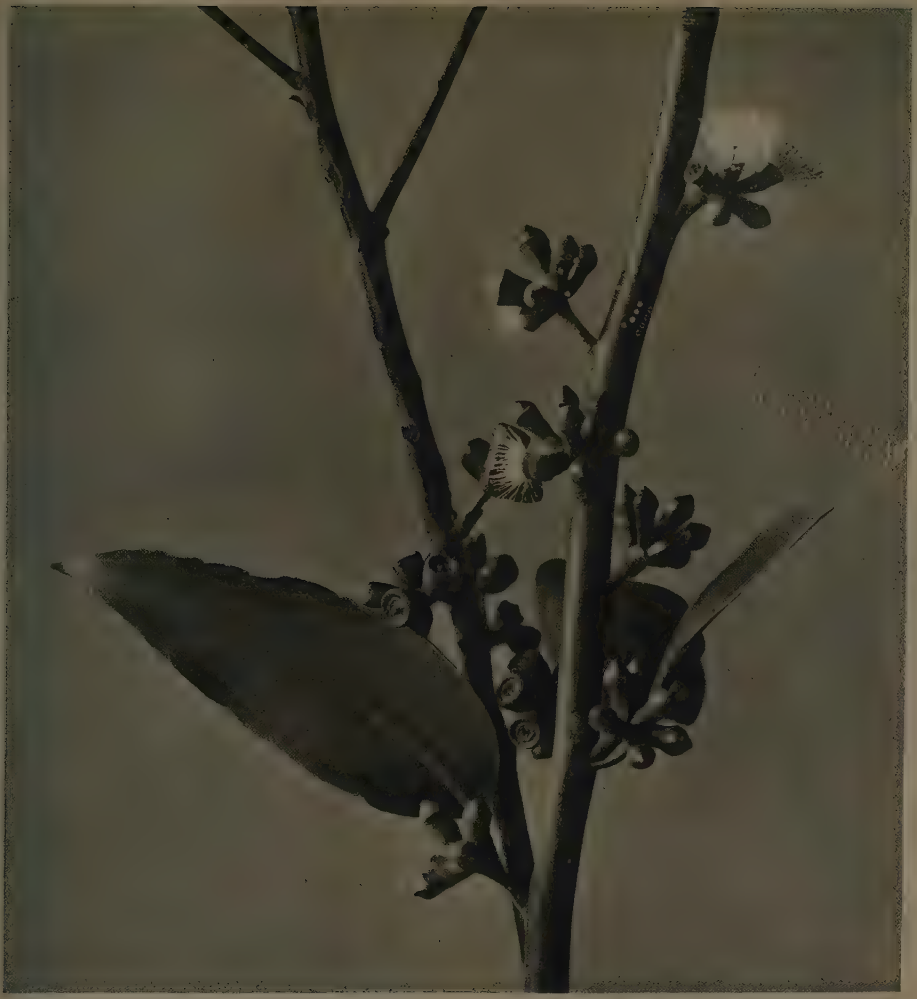


PLATE 10

E. ROBUSTA

Swamp Mahogany

HABITAT - - The coastal districts of New South Wales and Queensland.
BARK - - - Reddish, rough and furrowed.
LEAVES - - - Large, ovate-lanceolate with lateral veins.
OPERCULA - - Rostrate (thus differing from those of *E. botryoides*).
FLOWERS - - Three to seven, with short pedicels on long flattened peduncle.
FRUIT - - - Elongate-ovoid; truncate; valves exserted.

A sturdy and shapely tree in cultivation. The young shoots in the growing season are of especial beauty.

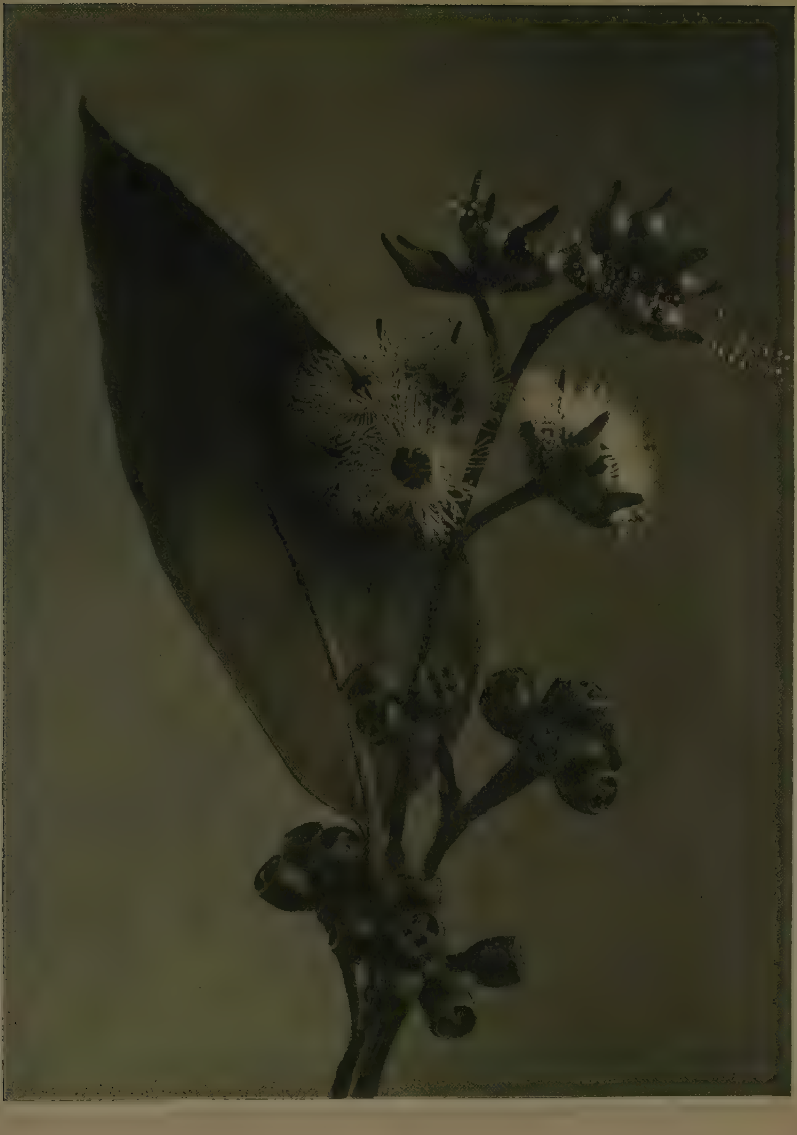


PLATE 11

E. PUNCTATA

Leather-jacket

Grey Gum

HABITAT	Coastal regions of New South Wales and Queensland.
BARK	Smooth, grey or ash-coloured.
LEAVES	Lanceolate and pale below, slightly oblique; inconspicuous transverse veins.
OPERCULA	Equilateral-conical and pointed.
FLOWERS	Up to seven on long peduncle.
FRUIT	Hemispherical; well-defined rim, with slightly exserted valves.

The colour and character of the bark are a valuable aid to the identification of this tree.

PLATE 12

E. EXIMIA

Yellow Bloodwood
Mountain Bloodwood

Habitat	New South Wales.
Bark	Thick and rather scaly or flaky.
Leaves	Thick and falcate; colour nearly equal on both sides.
Opercula	Almost hemispherical but pointed; in the bud homogeneous with the calyx, and parting from it (when forced up by stamens) by an ill-defined line. The operculum often adheres during the flowering.
Flowers	Prominent, well above the foliage, terminal.
Fruit	Truncate-ovoid; capsule sunk.

PLATE 13

E. SIDEROPHLOIA

Broad-leaf Ironbark

Habitat	New South Wales and northwards to Rockhampton (Queensland).
Bark	Coarsely furrowed, dark-coloured, thick.
Leaves	Lanceolate, equally coloured on both sides; moderately falcate.
Opercula	Acute-acuminate.
Flowers	Up to twelve on long peduncle.
Fruit	Semi-ovoid, with narrow rim; four or five cells; valves exserted, distinguishing this from most other ironbarks.

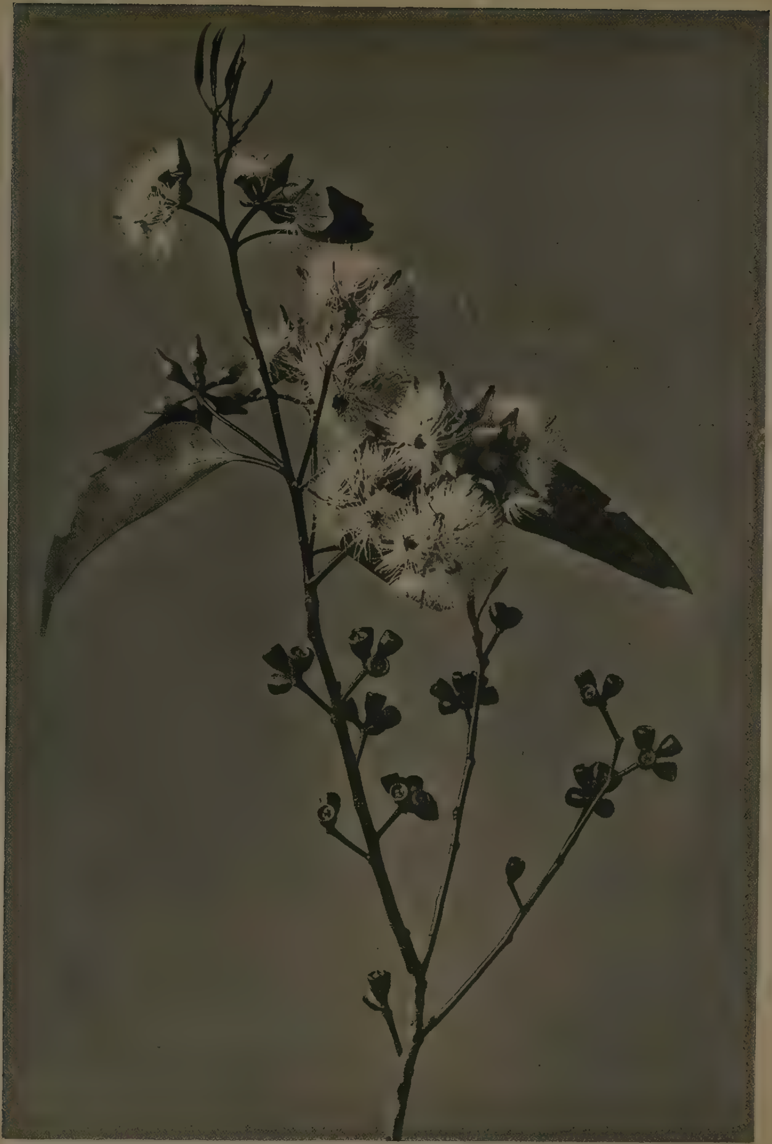


PLATE 14

E. SIDEROXYLON

Red Ironbark

Mugga

HABITAT - -	Victoria, New South Wales and Queensland.
BARK - - -	Black, deeply furrowed and hard.
LEAVES - - -	Lanceolate.
OPERCULA - -	Equilateral-conical, rostrate.
FLOWERS - -	On slender pedicel and peduncle; usually three in umbel.
FRUIT - - -	Turbinate and continuous with peduncle.

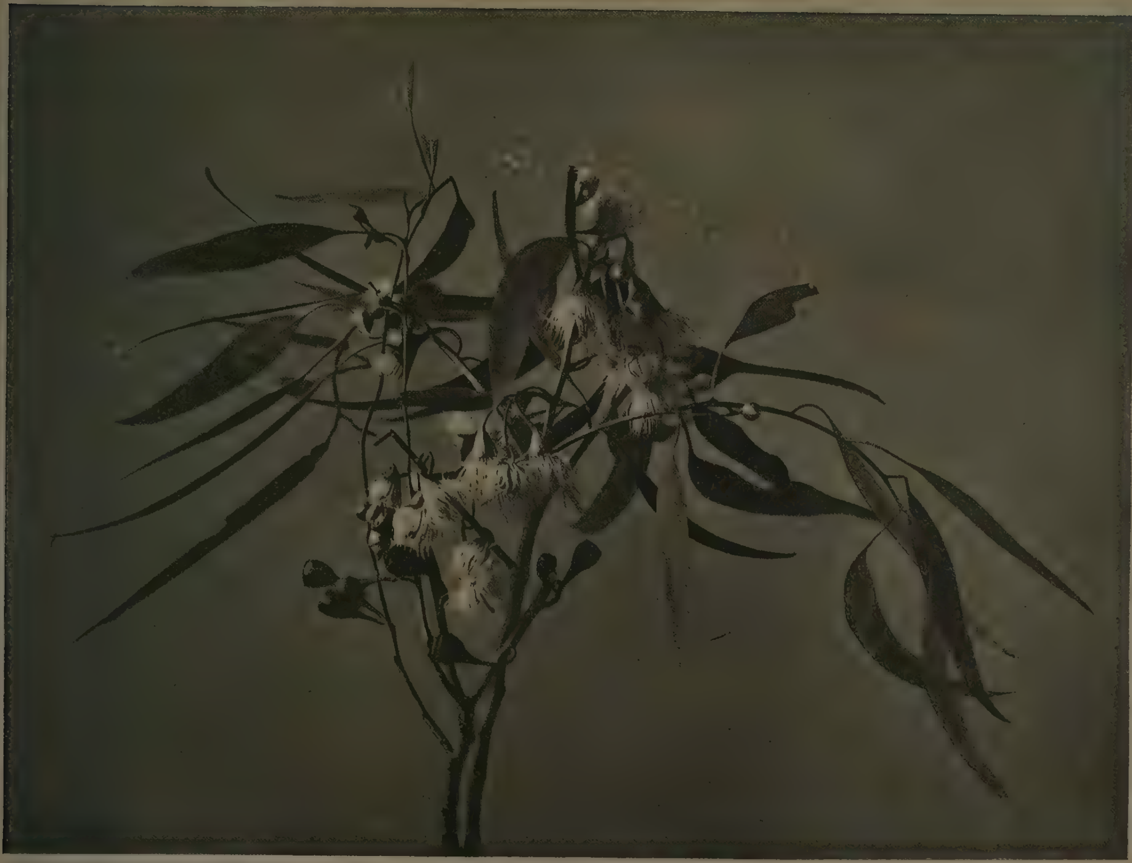


PLATE 15

E. SIDEROXYLON, *var* PALLENS

Grey-leaf Ironbark

HABITAT - -	New South Wales.
BARK - - -	Rough and persistent; deeply furrowed and black.
LEAVES - - -	Lanceolate, grey-green.
OPERCULA - -	Rostrate, acutely conical.
FLOWERS - -	Pink.
FRUIT - - -	Truncate-globular; valves inserted.

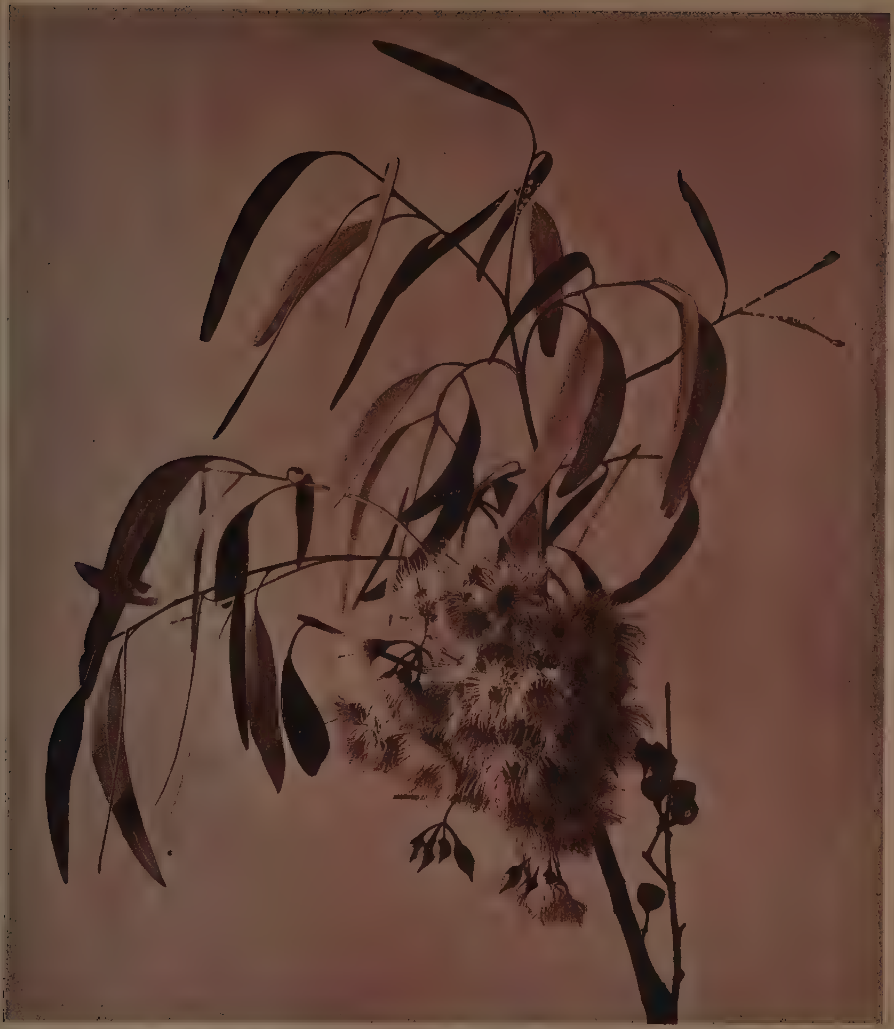


PLATE 16

E. SALIGNA

Sydney Blue Gum

Habitat - -	Coastal districts of New South Wales and Queensland.
Bark - - -	Smooth, blue-grey or grey.
Leaves - - -	Lanceolate, paler on underside, with inconspicuous transverse veins.
Opercula - -	Obtuse-conical and pointed.
Flowers - -	White, four to eight on peduncle; pedicel short or absent.
Fruit - - -	Long, turbinate with umbonate ovary and valves well exserted; well-defined rim.

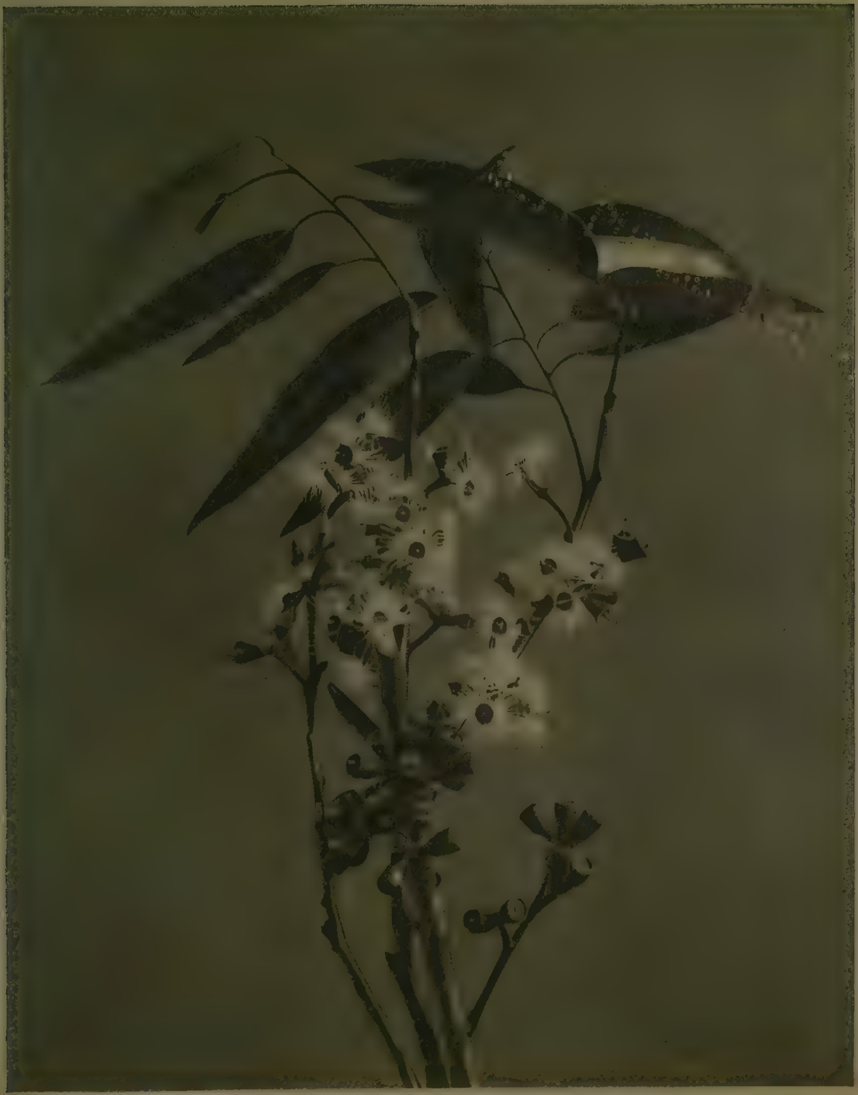


PLATE 17

E. MACARTHURI

Camden Woolly-Butt

Habitat - - New South Wales.
Bark - - - Like that of a Box; but rough and decidedly woolly.
Leaves - - - Alternately set on stalk; narrow and lanceolate, both pages equally coloured; the juvenile leaves are ovate-acuminate or cordate, sessile and opposite.
Opercula - - Hemispherical or slightly conical.
Flowers - - Small and axillary; short pedicels set on terete peduncle.
Fruit - - - Small and globular, with valves exserted.

An infallible characteristic of this species is the high geraniol content of the oil. The basic perfume of the bruised leaf is akin to that of geranium leaves or roses.

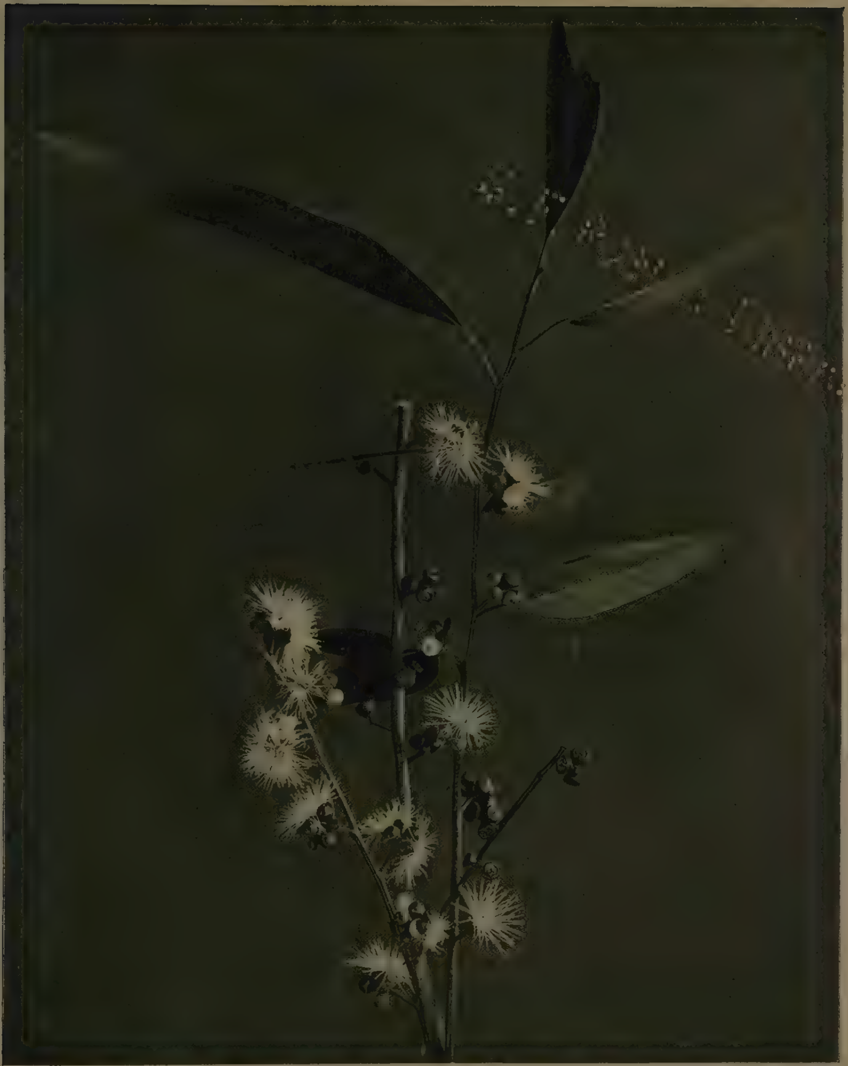


PLATE 18

E. VIRGATA

(*Syn.* E. LEUHMANNIANA)

Bulli White Gum

HABITAT	Very restricted; National Park and Bulli Mountain to Gosford, New South Wales.
BARK	Smooth and flaky at butt.
LEAVES	Long, thick, falcate with thickened edges; the branchlets are very glaucous and angular.
OPERCULA	Pointed-hemispherical or conical, ribbed and glaucous; the flower-buds are enclosed in a common thin membrane (*calyptra*)
FLOWERS	Large and prominent on thick flattened and angular peduncle.
FRUIT	Semi-ovoid, corrugated, five-celled; thin defined rim.

The young shoots and branchlets of this tree are very beautiful, and form the chief characteristic of the species.

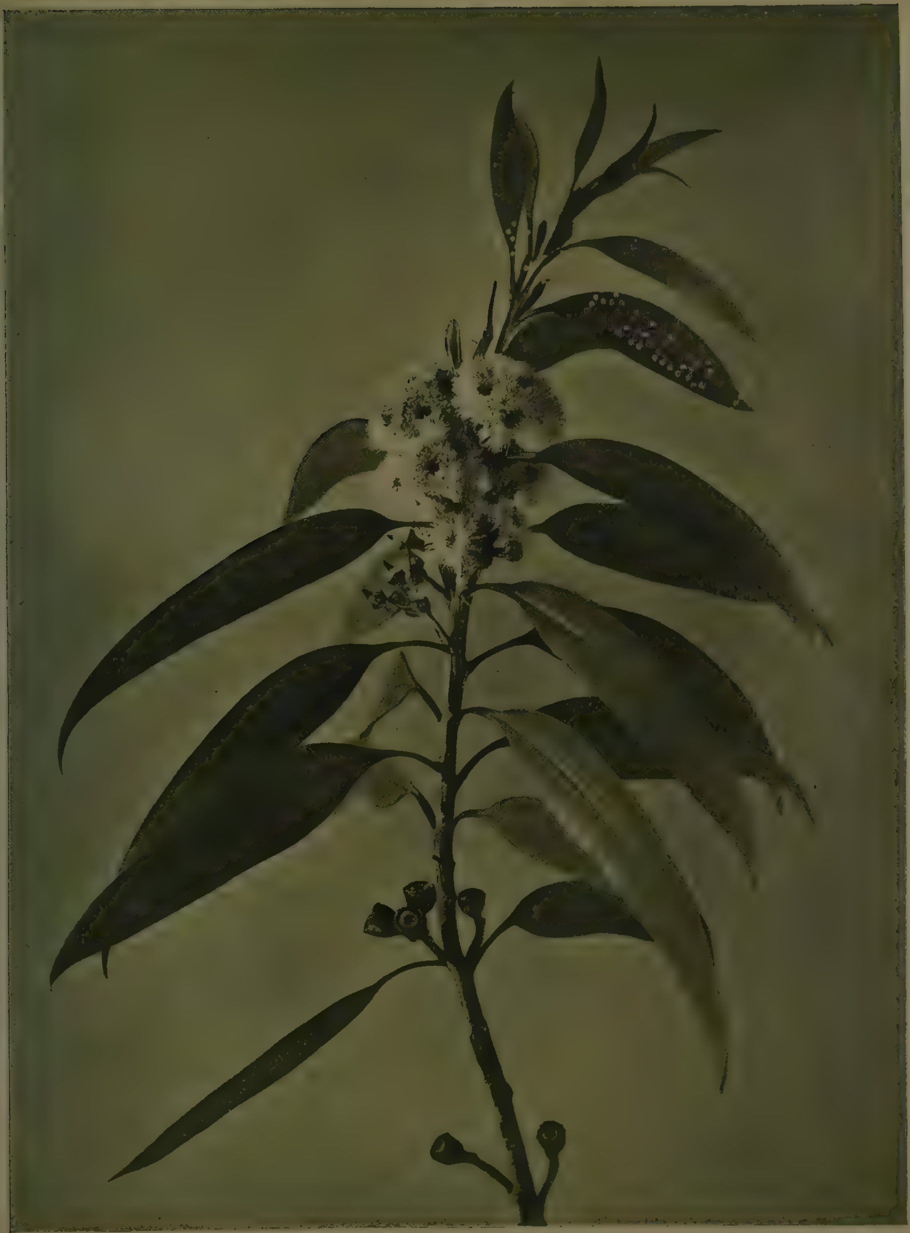


PLATE 19

E. MELLIODORA

Yellow Box

Habitat	South Australia, Victoria, New South Wales and Queensland.
Bark	Brown and grey in colour outside, quite yellow inside, Box type; smooth on upper branches.
Leaves	Narrow-lanceolate with marginal vein, distinct and removed from the edge; grey sheen, equal on both sides.
Opercula	Obtuse-conical.
Flowers	Small but prominent with a sweet honey-like perfume; usually in clusters of four to seven.
Fruit	Truncate-globular; valves inserted.

The prevailing tree in many parts of Riverina, and a great producer of honey.

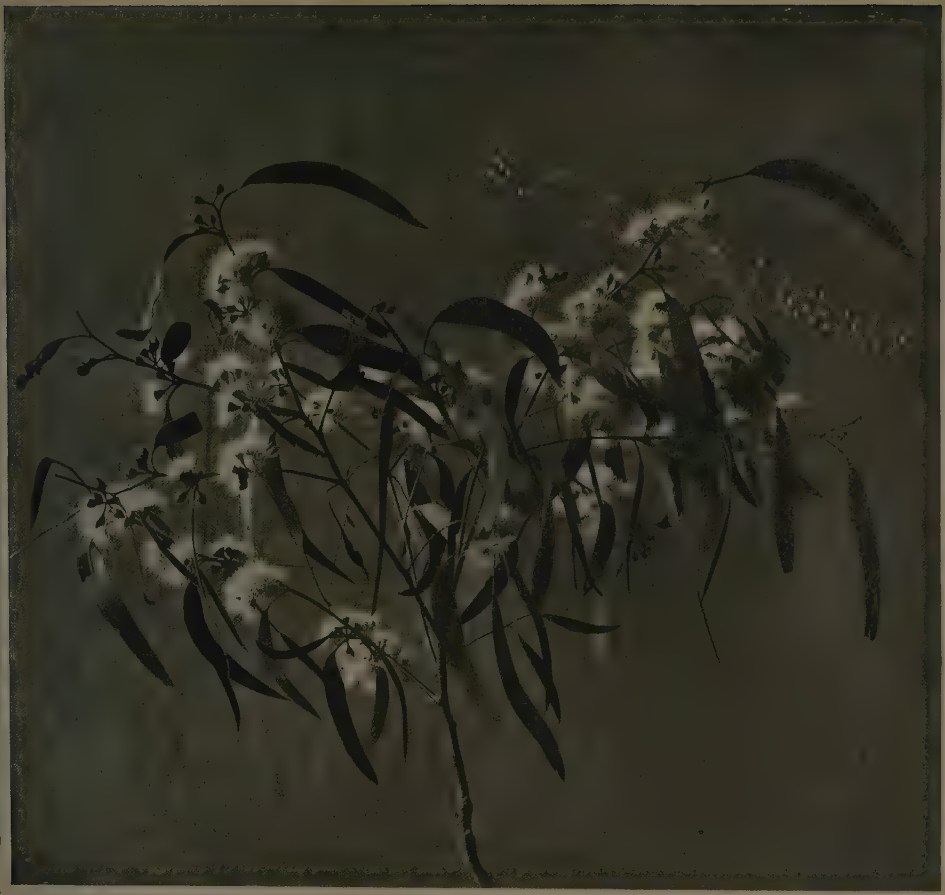


PLATE 20

E. BAUERIANA

(*Syn.* E. SUBROTUNDA)

Fuzzy Box

Habitat	Victoria, New South Wales and Queensland.
Bark	Persistent, grey and furrowed.
Leaves	With rather long petioles, ovate or round; midrib well defined, with intra-marginal vein well removed from edge; in general appearance like those of *E. Polyanthemos.*
Opercula	Conical.
Flowers	Terminal, small; from three to six in umbel.
Fruit	Acute-conical; rim thin, valves inserted.

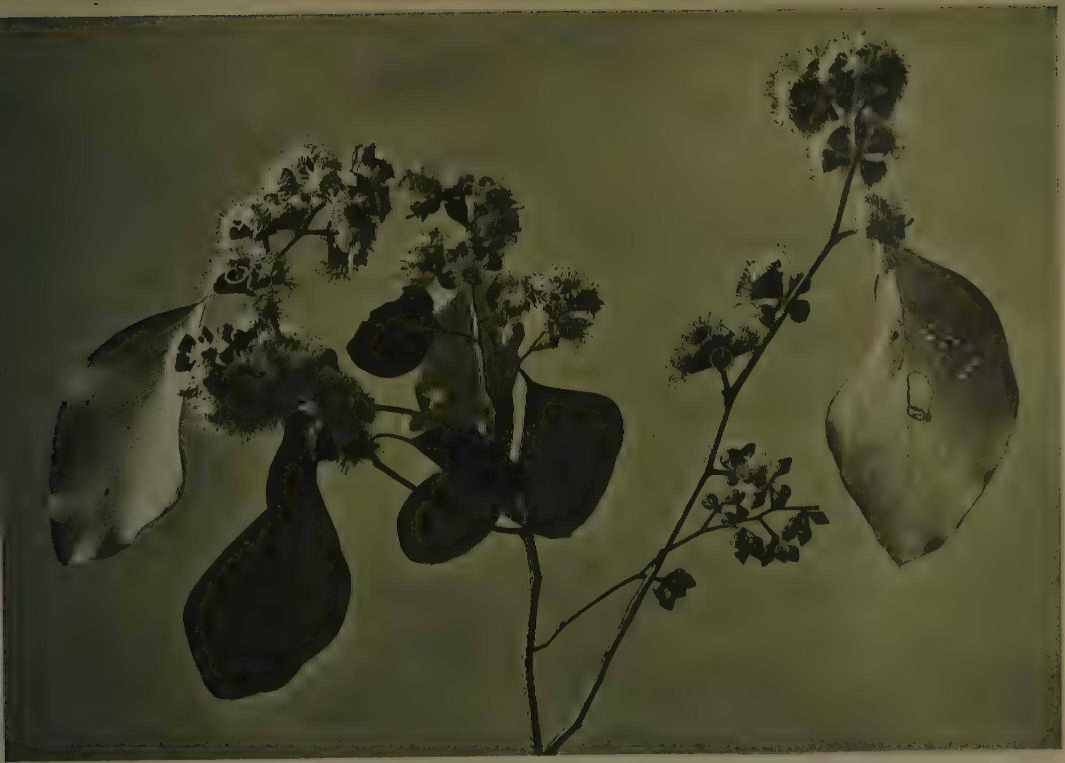


PLATE 21

E. MACULOSA

White Brittle Gum

HABITAT - - Victoria and New South Wales.
BARK - - - Smooth.
LEAVES - - - Lanceolate, narrow, falcate.
OPERCULA - - Equilateral-conical, acuminate.
FLOWERS - - Four to eight on slender peduncle; pedicel short.
FRUIT - - - Hemispherical; valves slightly exserted; rim domed or truncate.

This species somewhat resembles *E. viminalis* and *E. rubida*.

PLATE 22

E. LONGIFOLIA

Woolly-Butt

HABITAT - - Victoria and New South Wales.
BARK - - - Dark, wrinkled and persistent.
LEAVES - - - Long, falcate and slightly oblique.
OPERCULA - - Equilateral-conical and pointed.
FLOWERS - - Usually three on long pedicels, on recurved axillary or lateral peduncle.
FRUIT - - - Hemispherical, with broad rim contracted and prominent; valves slightly exserted.

PLATE 23

E. CORYMBOSA

Bloodwood

Habitat - - Victoria, New South Wales and Queensland.
Bark - - - Dark, furrowed and persistent.
Leaves - - - Ovate-lanceolate, acuminate, with regular transverse veins.
Opercula - - Short and umbonate.
Flowers - - Terminal and prominent; three to nine on slender pedicels and peduncles.
Fruit - - - Large and urceolate; three or four valves deeply inserted.

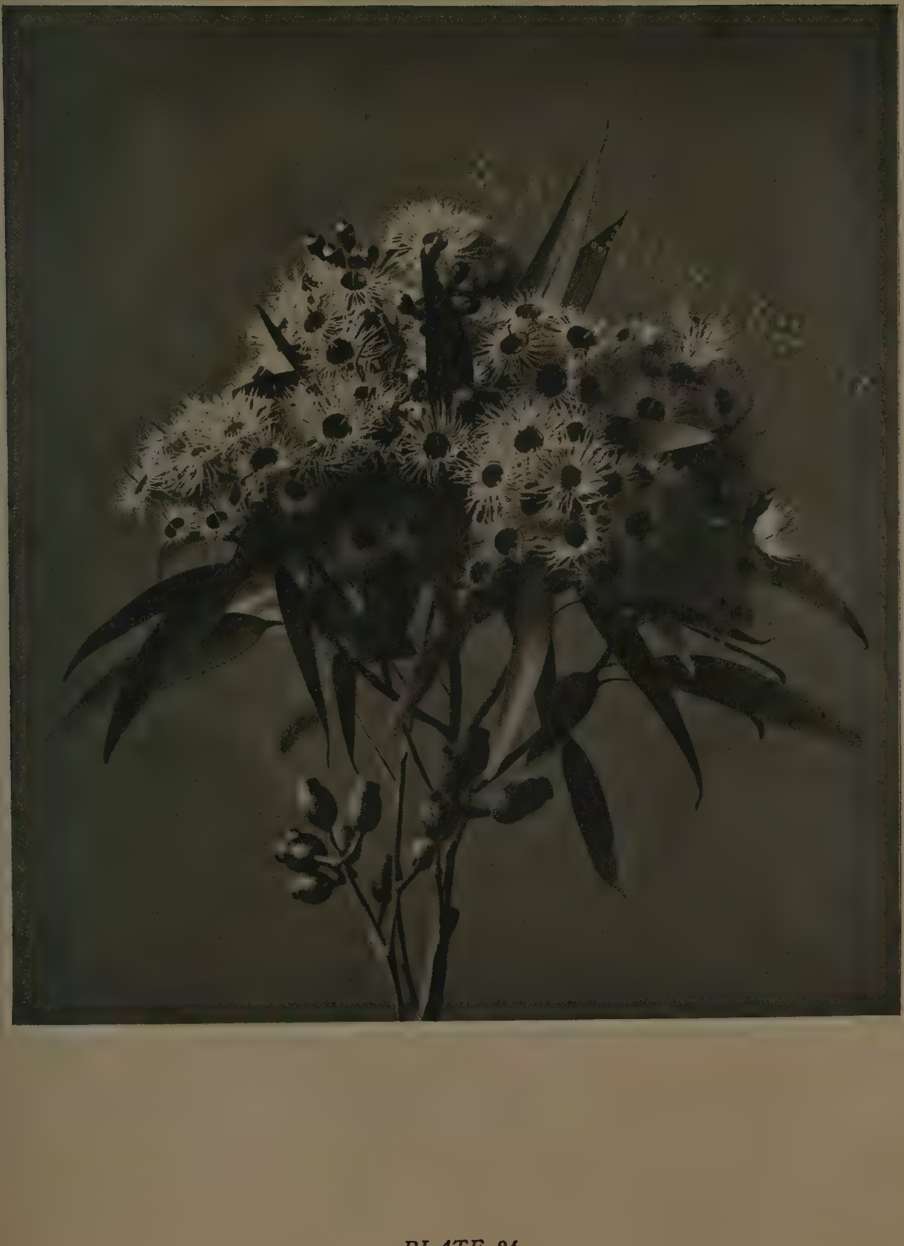


PLATE 24

E. PANICULATA

Grey Ironbark

Habitat - - Queensland, New South Wales and Victoria.
Bark - - - Rough, dark and persistent.
Leaves - - - Lanceolate, elongate-acuminate, often falcate; paler below than above, and dull.
Opercula - - Short and conical.
Flowers - - Three to eight in panicle on short angular peduncle.
Fruit - - - Semi-ovoid; slightly exserted valves.

PLATE 25

E. STUARTIANA

Apple of Victoria and South-western N.S.W.

Apple Box

Habitat	Victoria, New South Wales and Queensland.
Bark	Scaly and fibrous, not always decidedly Box-like; persistent on butt, but ends of branches smooth.
Leaves	Juvenile leaves glaucous, sessile, and nearly circular; mature leaves lanceolate, petiolate, equally green on both pages.
Opercula	Equilateral-conical or slightly rostrate.
Flowers	Four to seven in umbel, with short pedicels on short terete peduncle.
Fruit	Nearly hemispherical; rim well defined and slightly domed, valves exserted.

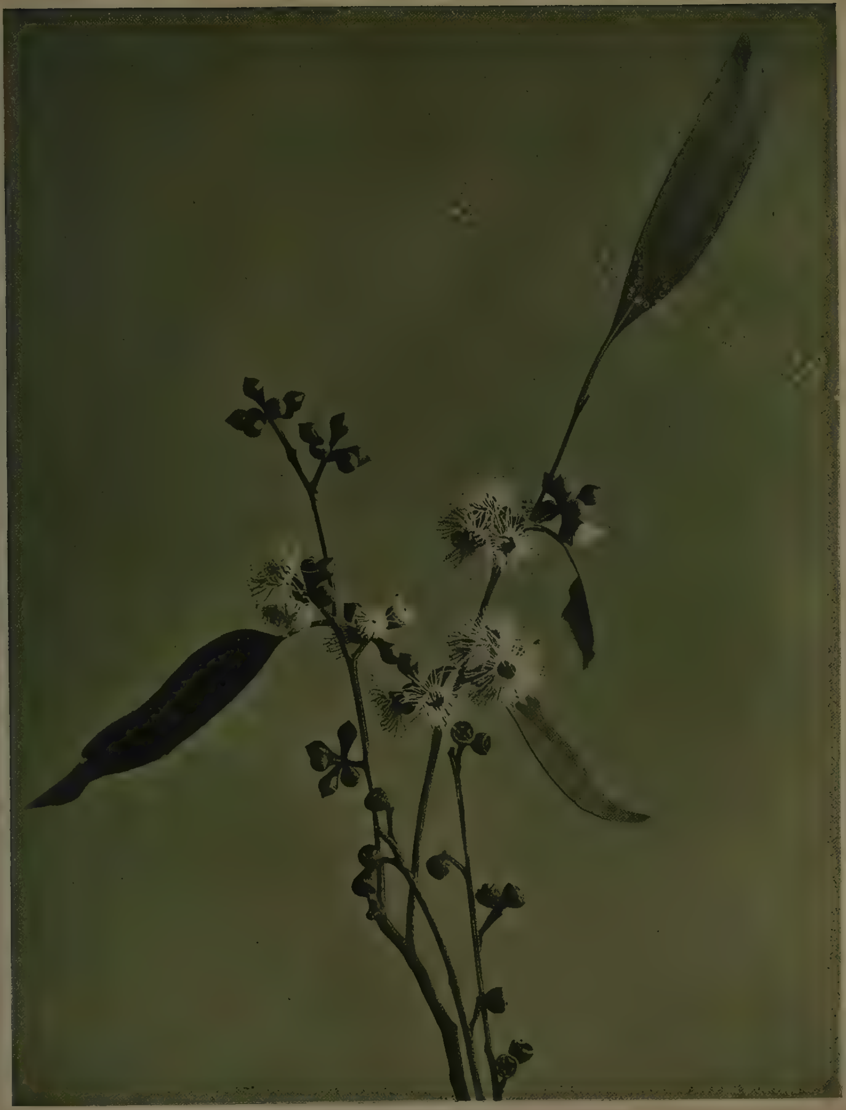


PLATE 26

E. ALBENS

(*Syn.* E. HEMIPHLOIA, *var.* ALBENS)

White Box

HABITAT - -	Victoria and New South Wales.
BARK - - -	Of Box type; branchlets smooth and white with bloom.
LEAVES - - -	Broad, lanceolate.
OPERCULA - -	Acute-conical, often mucronate.
FLOWERS - -	About seven, nearly sessile on flattened peduncle.
FRUIT - - -	Semi-ovoid, elongated; valves inserted.

PLATE 27

E. ROSTRATA

Red Gum

River Red Gum

HABITAT - - Western Australia, South Australia, Victoria, New South Wales and Queensland. Generally to be found marking the course of rivers and occasional creeks.
BARK - - - Smooth and clean, decorticating in long strips; in colour patchy; often showing a regular whorl, usually right-handed.
LEAVES - - - Lanceolate-acuminate and mostly falcate.
OPERCULA - - Conical and rostrate.
FLOWERS - - White, from four to eight on slender peduncles; short pedicels.
FRUIT - - - Hemispherical; flat rim, valves prominent.

The wonderful tree that lines our water-courses, and roofs in Gothic splendour the billabongs and swamps.

PLATE 28

E. CINEREA

Argyle Apple
Mealy Stringybark

HABITAT - -	Victoria and New South Wales.
BARK - - -	Brown or reddish, persistent and fibrous.
LEAVES - - -	Sessile and ovate, or lanceolate on petioles.
OPERCULA - -	Obtuse-conical.
FLOWERS - -	Usually one to three; pedicels short, peduncle short and slightly flattened.
FRUIT - - -	Hemispherical, with three to five valves, slightly exserted.

PLATE 29

E. CINEREA, *var.* MULTIFLORA

Silver-leaf Stringybark

HABITAT - -	Victoria and New South Wales.
BARK - - -	Dark grey, stringy or fibrous; smooth on branchlets.
LEAVES - - -	Lanceolate, curved and occasionally falcate; grey-green in maturity, silver-grey in seedlings and suckers.
OPERCULA - -	Obtuse-conical.
FLOWERS - -	Almost sessile on slightly flattened peduncle.
FRUIT - - -	Hemispherical and domed; valves slightly exserted.

The young growth of this species is of exquisite hues in silver-grey.

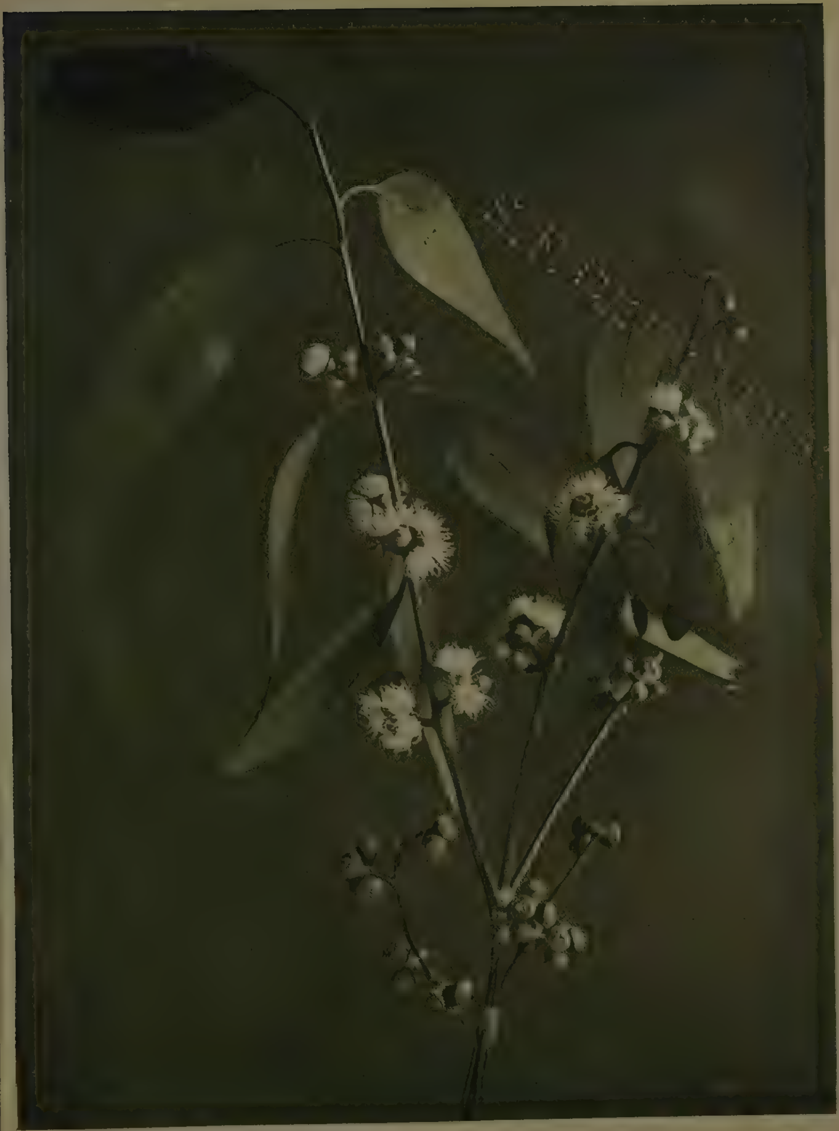


PLATE 30

E. EUGENIOIDES

White Stringybark

Habitat - - Eastern Victoria, New South Wales, Southern Queensland.
Bark - - - Persistent, dull grey in colour, fibrous.
Leaves - - - Juvenile leaves lanceolate and undulate, covered with stellate hairs; mature leaves ovate-acuminate or shortly lanceolate, dark-green and shiny on both sides.
Opercula - - Hemispherical to acute-conical, sometimes almost rostrate.
Flowers - - Four to twenty on slender peduncle, with short pedicels.
Fruit - - - Truncate-globular, crowded into fairy regular sphere; valves slightly exserted.

A characteristic habit of this tree is the detached canopy-like arrangement of the leaves at the end of the branches. The branches are detached, and do not merge one into another.

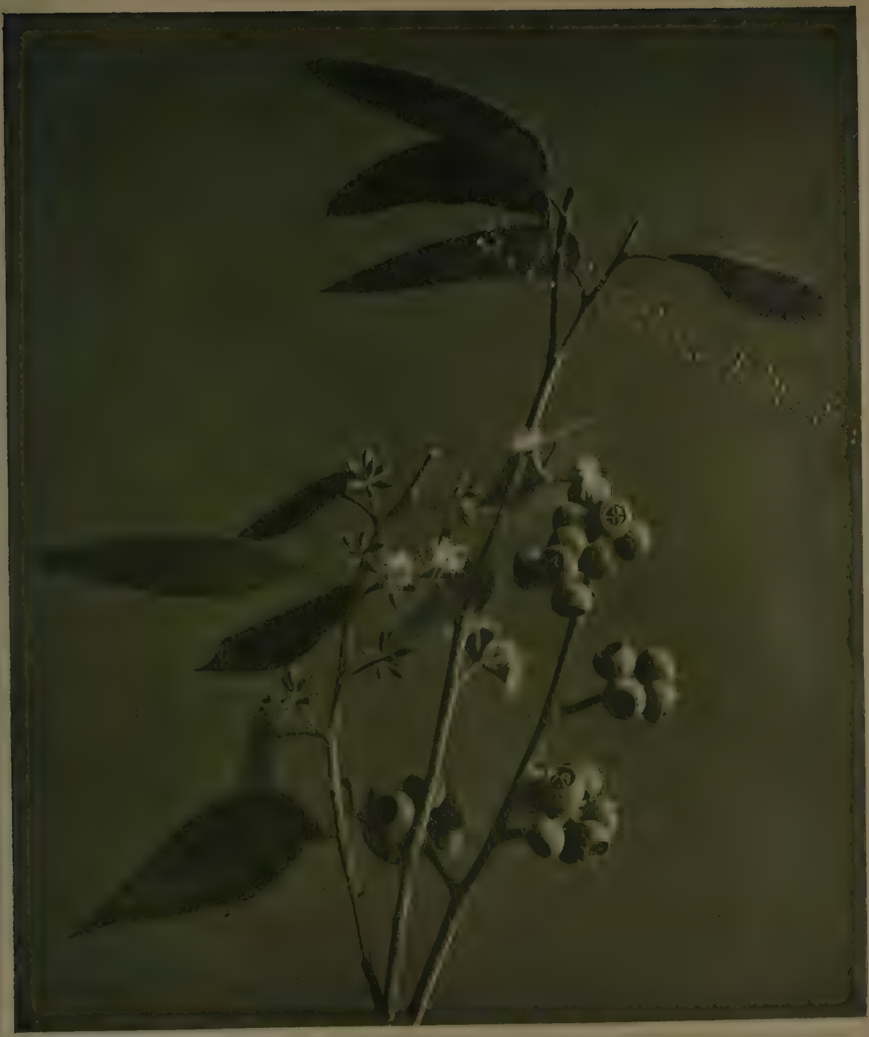


PLATE 31

E. MACRORRHYNCHA

Red Stringybark

HABITAT - -	Victoria, South Australia, New South Wales and Southern Queensland.
BARK - - -	Persistent; dull grey in colour, fibrous and rather deeply furrowed.
LEAVES - - -	Falcate, lanceolate and acuminate, grey-green; colour equal on both sides.
OPERCULA - -	Distinctly rostrate and often slightly twisted.
FLOWERS - -	Four to nine, almost sessile on slender terete peduncle (often angled).
FRUIT - - -	Comparatively large and oblately spheroidal; whilst green almost bi-convex; very decided rim, much domed, valves exserted.

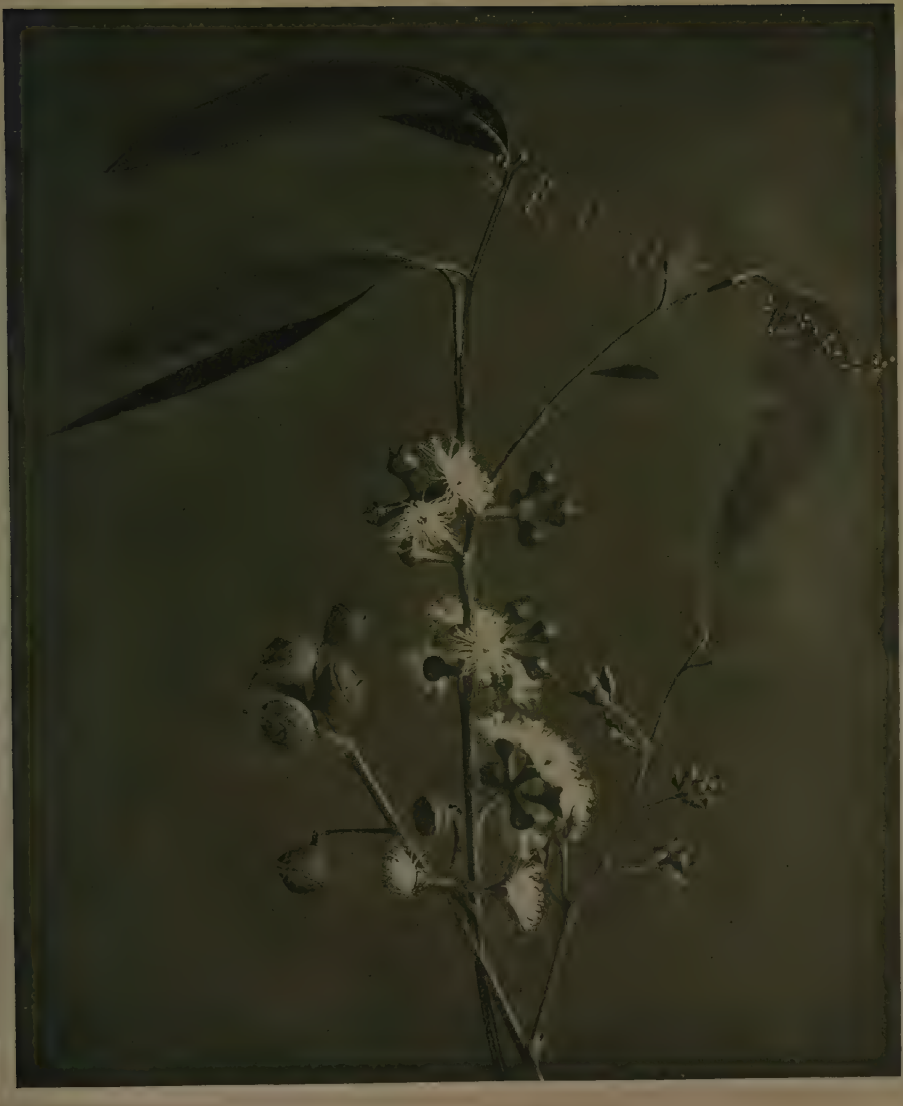


PLATE 32

E. ELÆOPHORA

(*Syn.* E. CAMBAGEI)

Long-leaf Box

Bundy

HABITAT - -	Victoria and New South Wales.
BARK - - -	Box type.
LEAVES - - -	Lanceolate-acuminate, dull, very long (eight to twenty-five inches).
OPERCULA - -	Obtuse-conical.
FLOWERS - -	On thick flattened peduncle (no pedicel), five to seven in umbel; buds often with one to four angles.
FRUIT - - -	Sessile on short round peduncle, hemispherical or truncate-ovoid; valves level with rim, three or four-celled.

PLATE 33

E. LEUCOXYLON

Yellow Gum

White Ironbark

HABITAT - - South Australia, Victoria and New South Wales.
BARK - - - Smooth and yellowish, with grey patches.
LEAVES - - - Lanceolate-acuminate.
OPERCULA - - Conical and rostrate.
FLOWERS - - Up to three, on slender pedicels and peduncles.
FRUIT - - - Truncate-globular or turbinate; valves numerous, much inserted.

PLATE 34

E. VIRIDIS

(*Syn.* E. ACACIOIDES)

Green Mallee

Habitat - -	Victoria and New South Wales.
Bark - - -	Smooth.
Leaves - - -	Linear-lanceolate, uncinate.
Opercula - -	Equilateral-conical.
Flowers - -	Small and not prominent; up to ten in umbel.
Fruit - - -	Pilular; valves inserted, sessile on short peduncles.

PLATE 35

E. GONIOCALYX

Mountain Gum

HABITAT - - Victoria and New South Wales.

BARK - - - Smooth and grey, sometimes rough at base.

LEAVES - - - Lanceolate and elongate, often very long (twenty-six inches); both sides equally coloured, with transverse veins.

OPERCULA - - Obtuse-conical.

FLOWERS - - Three to seven on thick flattened peduncle; very short pedicels; calyx tube often with two to four prominent angles.

FRUIT - - - Truncate-ovoid; thin rim, valves level or slightly above rim; calyx slightly angled.

TREE - - - Very tall in mountain forests, up to three hundred feet high.

A monarch of the mountain sides, that yields a timber of great beauty and utility.

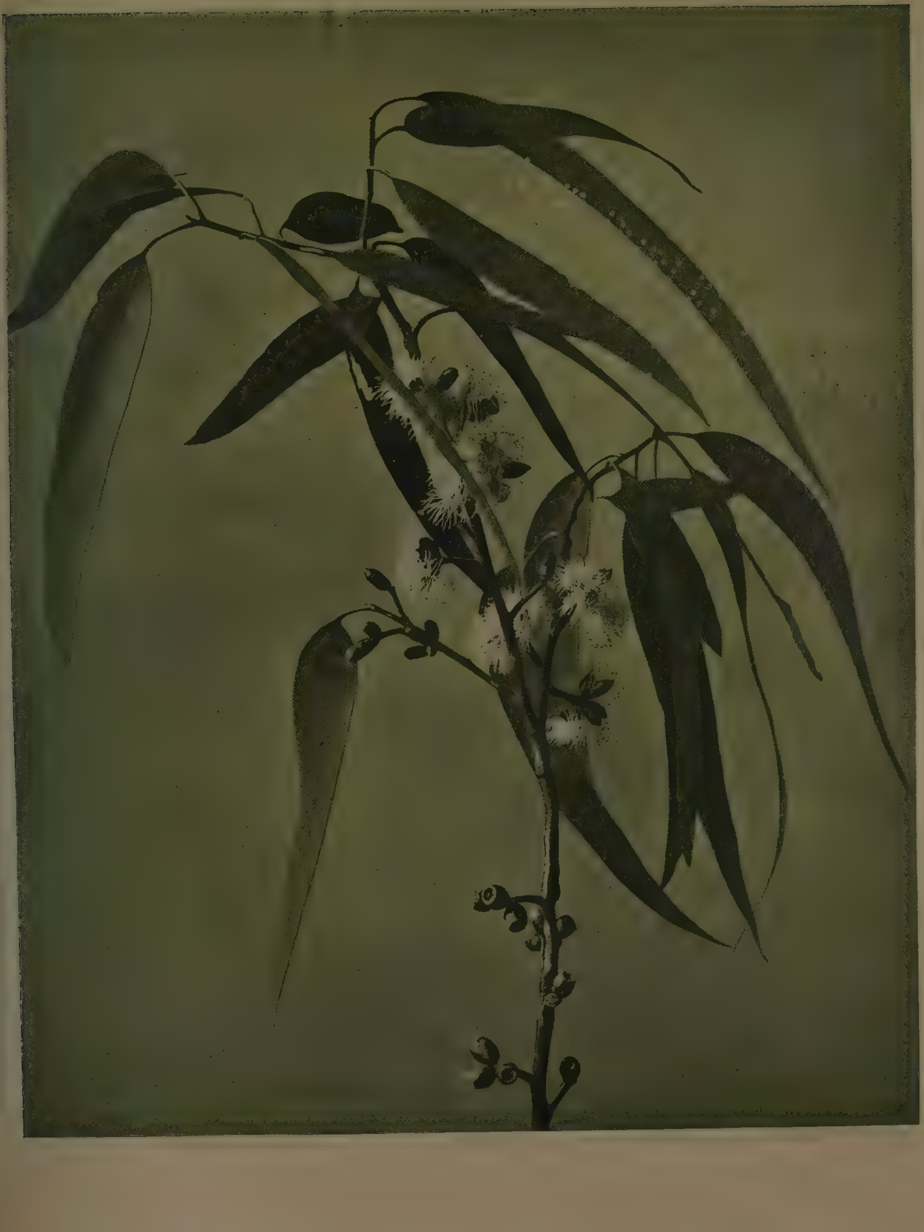


PLATE 36

E. CORIACEA

(*Syn.* E. PAUCIFLORA)
White Sallee
Cabbage Gum
Weeping Gum (Tas.)

HABITAT - - New South Wales, Victoria, Tasmania, South Australia.
BARK - - - Smooth shiny white, sometimes "glassy."
LEAVES - - - Ovate-lanceolate or lanceolate, coriaceous; equally shiny on both sides with characteristic parallel veins.
OPERCULA - - Hemispherical-unbonate.
FLOWERS - - Buds clavate; short pedicels on stout terete peduncle; usually five to ten, occasionally up to forty.
FRUIT - - - Large in comparison with flower; truncate-ovoid or nearly hemispherical, with marked rim; velves flat or very slightly exserted.

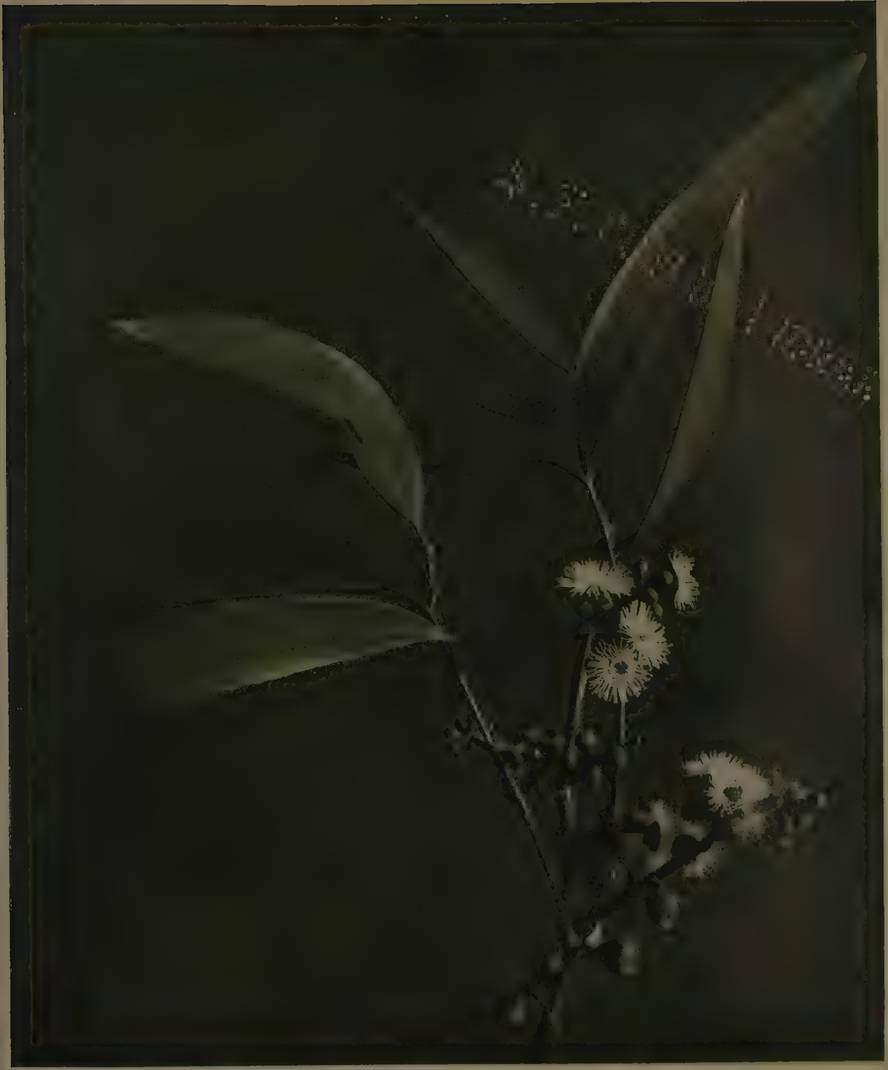


PLATE 37

E. VIMINALIS

Manna Gum

Ribbony Gum

HABITAT	Tasmania, South Australia, Victoria and New South Wales.
BARK	In the coastal type rough and persistent at the base, smooth and clean on the limbs and branchlets; in the mountain type smooth, almost white, shedding in ribbons.
LEAVES	Lanceolate-falcate and acuminate; veins rather irregular, the intramarginal one close to the edge.
OPERCULA	Conical and pointed.
FLOWERS	Axillary or lateral, generally arranged in twos and threes on a short peduncle; young buds generally cruciform.
FRUIT	Globular, semi-ovoid or shortly turbinate, decided rim, three or four valves.

Indistinguishable from *E. rubida,* excepting in the sucker form. In *E rubida* the sucker-shoots are ovate-cordate, grey green. In *E. viminalis* they are linear-lanceolate, bright green.

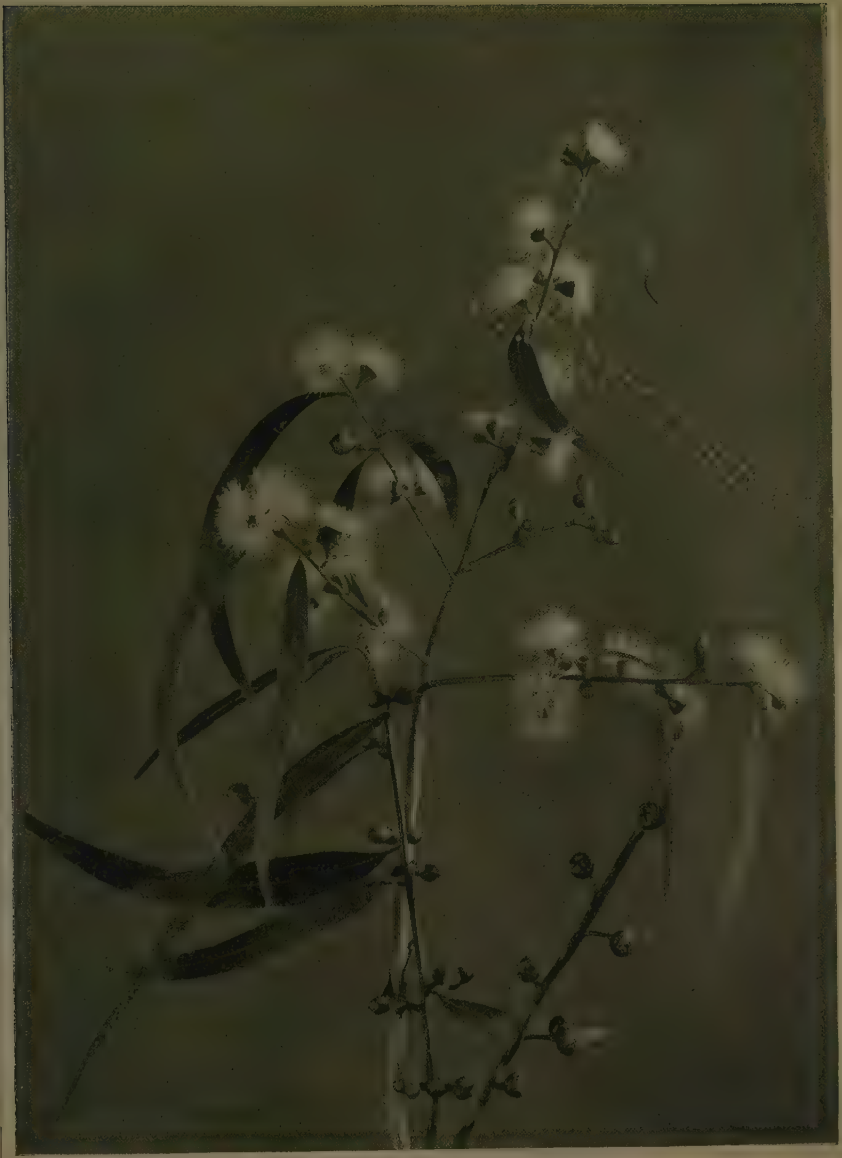


PLATE 38

E. RUBIDA

Candlebark

Habitat - - New South Wales, Victoria and South Australia.

Bark - - - Smooth and white, often with reddish patches; sometimes thick, rugged and reddish at the base of the tree.

Leaves - - - Seedling and sucker leaves nearly round or ovate-cordate, grey-green in colour (thus differing from *E. viminalis*); mature leaves dull green, equally coloured on both sides, narrow-lanceolate.

Opercula - - Acute-conical when young; nearly hemispherical when older.

Flowers - - Generally in twos and threes on short terete peduncle; young buds cruciform.

Fruit - - - Truncate-globular or turbinate; rim broad, three or four valves exserted.

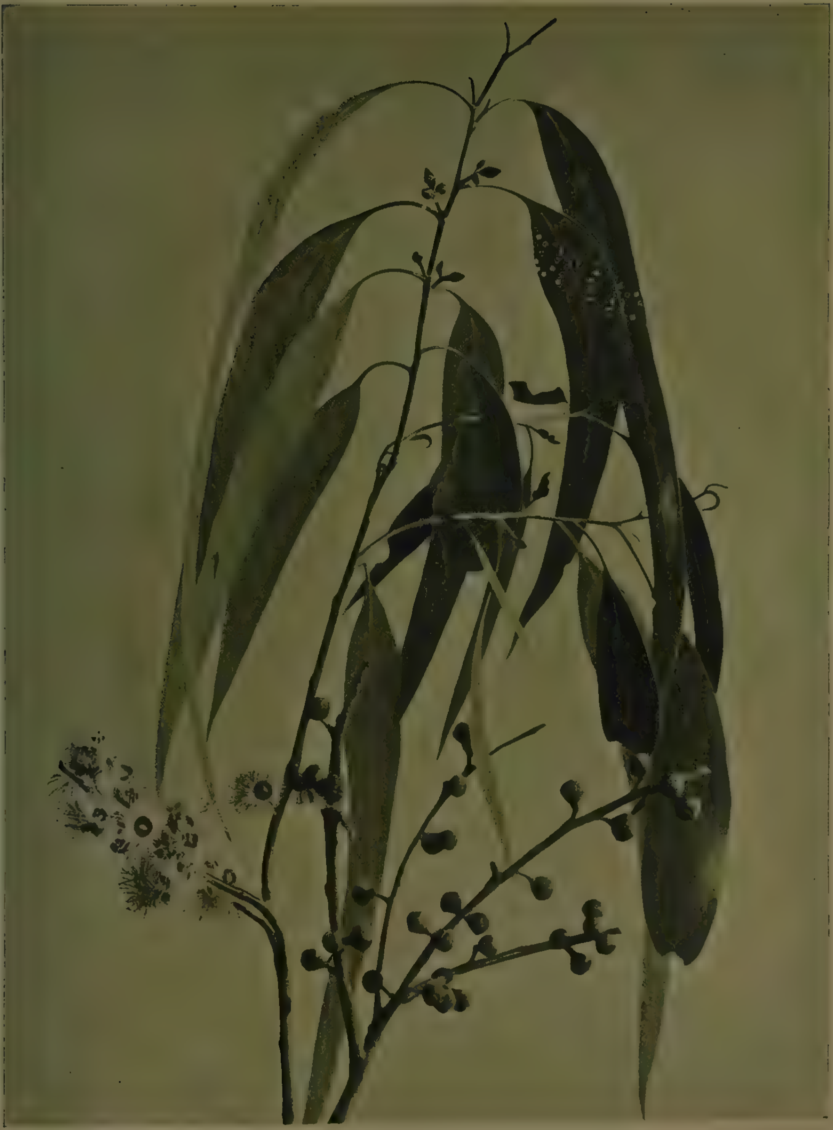


PLATE 39

E. MAIDENI

Spotted Blue-Gum

HABITAT - - South-eastern New South Wales, Gippsland (Victoria).

BARK - - - Smooth above, rough and ribbony at butt.

LEAVES - - - Narrow-elongate to broadly lanceolate; rather thick and slightly falcate.

OPERCULA - - Obtuse or hemispherical; thick, umbonate, sometimes warty.

FLOWERS - - Two to nine on angular stalk; peduncles very short or absent.

FRUIT - - - Semi-ovoid or hemispherical; rim broad and convex, warty or smooth and slightly angled; valves three to five, much exserted.

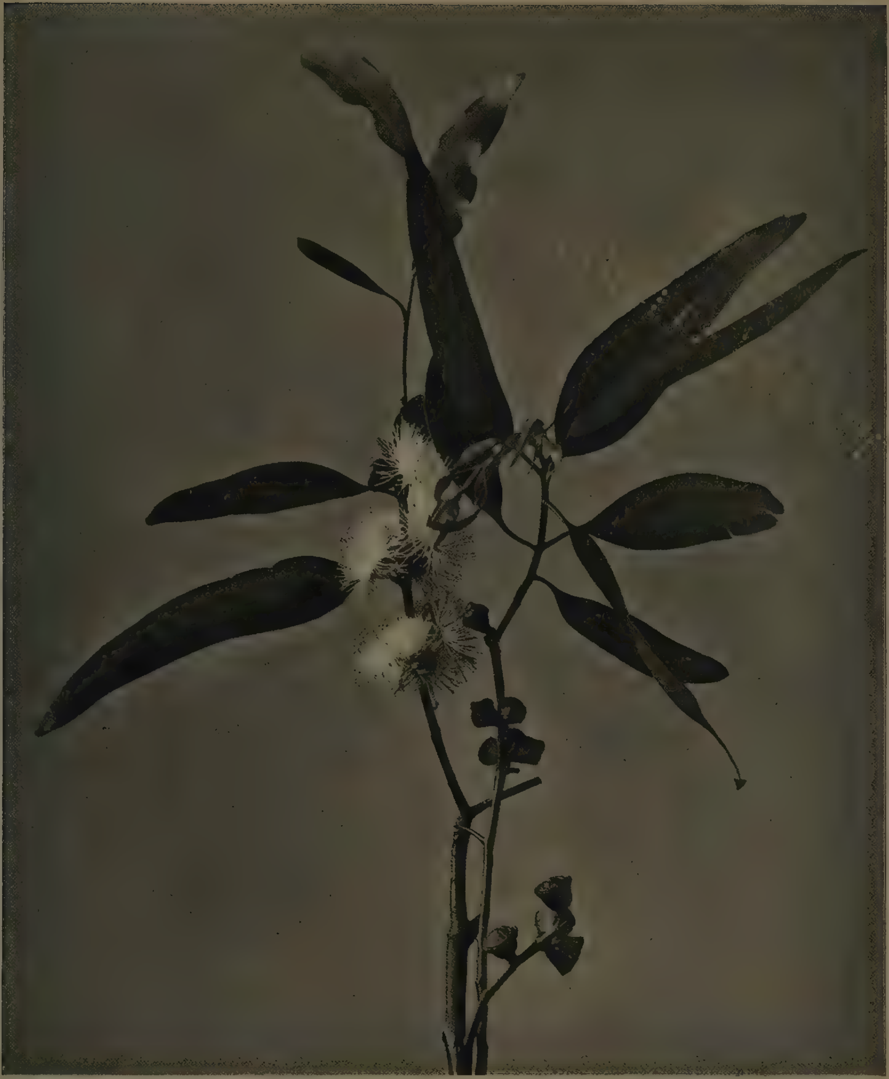


PLATE 40

E. KITSONIANA

Gippsland Mallee
Flat-root

HABITAT	Restricted to South Gippsland (Victoria).
BARK	Smooth and ash-grey in colour.
LEAVES	From oblong or very broadly lanceolate in the young tree to lanceolate and narrow-lanceolate in the older stages; coriaceous mature leaves, with long petioles.
OPERCULA	Obtuse-conical to nearly hemispherical, often umbonate.
FLOWERS	From three to seven on flattened peduncle.
FRUIT	Hemispherical or truncated ovoid; rim well defined; three, four or five valves level with rim or very slightly exserted.

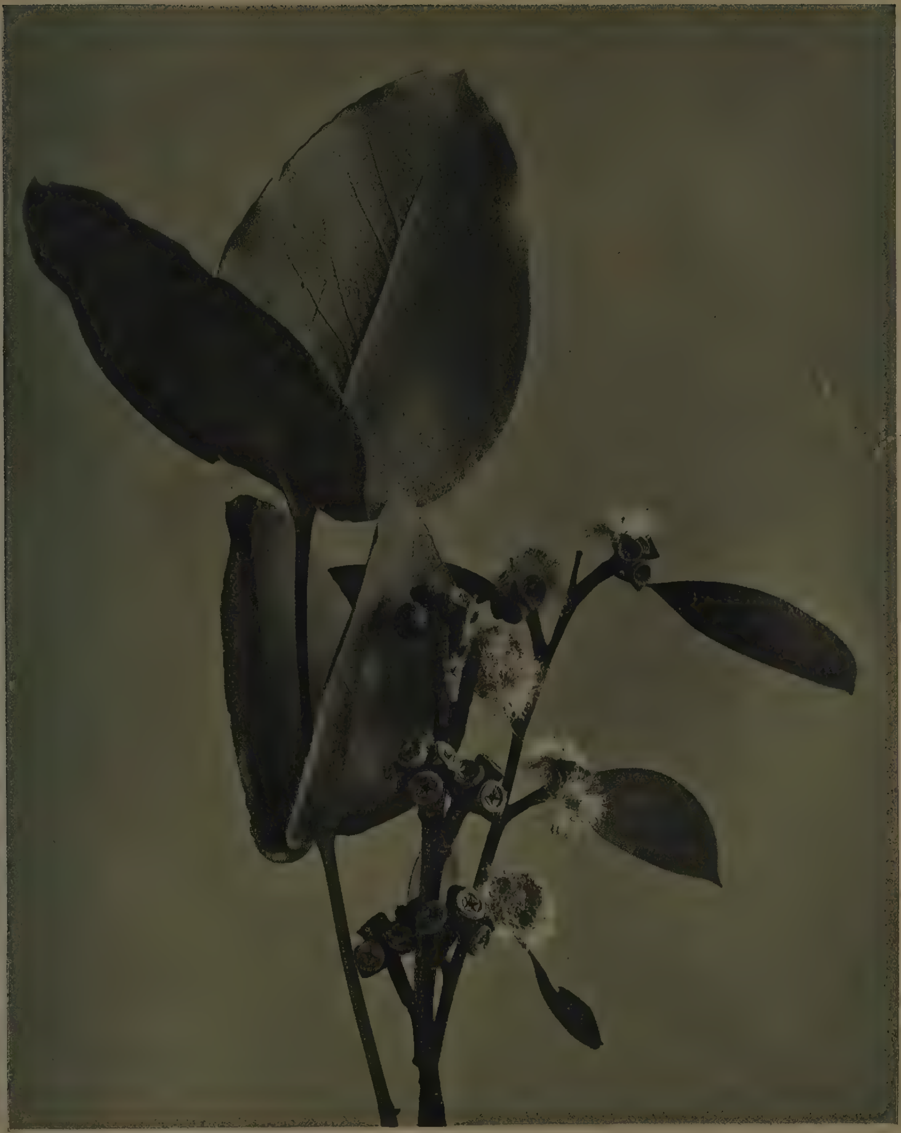


PLATE 41

E. SIEBERIANA

Mountain Ash
Yowut
Gum-top

Habitat	New South Wales, Victoria, Tasmania.
Bark	Rugged, dark-coloured and furrowed.
Leaves	Lanceolate and falcate; usually smooth, shining and coriaceous.
Opercula	Hemispherical or slightly umbonate.
Flowers	Often ocellate; from four to ten in umbel; long flattened peduncle; buds clavate.
Fruit	Pyriform, three- to five-celled; flat or depressed rim; valves short and inserted.

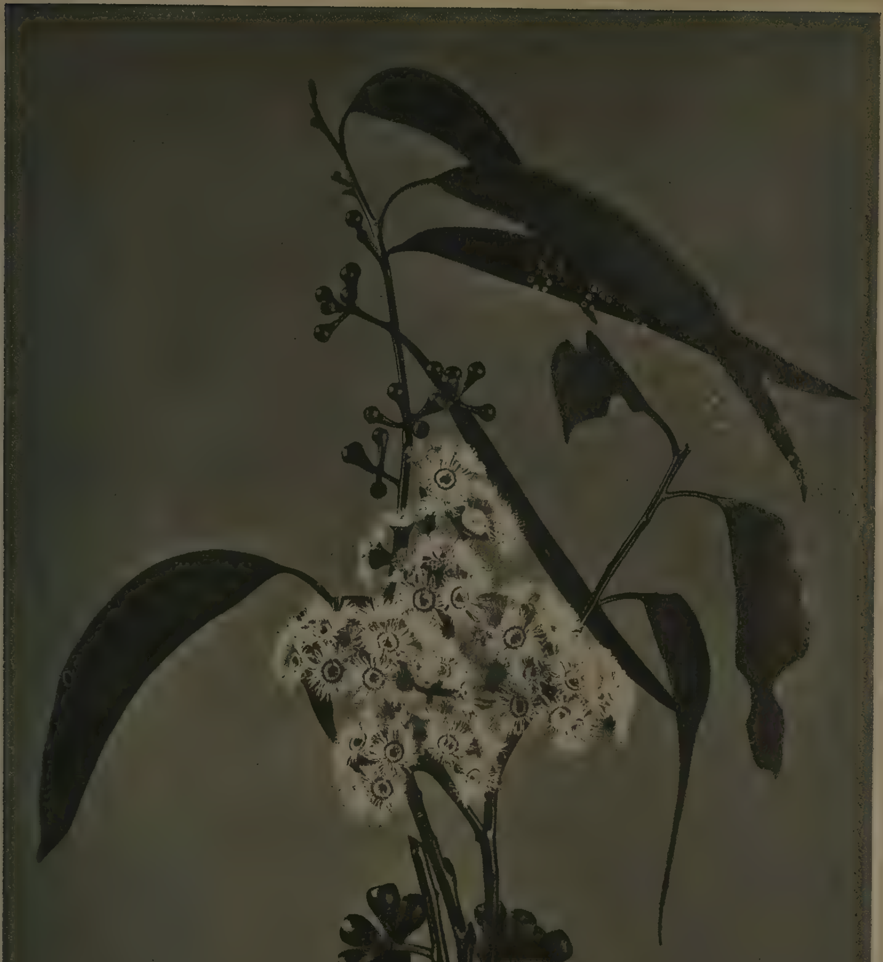


PLATE 42

E. AUSTRALIANA

(*Syn.* E. AMYGDALINA, *var.* AUSTRALIANA)

Common Peppermint

Habitat	New South Wales, Victoria and South Australia.
Bark	Light-coloured and fibrous, midway between a stringy and a Box bark.
Opercula	Hemispherical.
Leaves	Lanceolate-falcate, veins parallel.
Flowers	In thick, close clusters; often as many as thirty on each peduncle.
Fruit	Hemispherical and globular, with well-marked rim; valves never exserted.

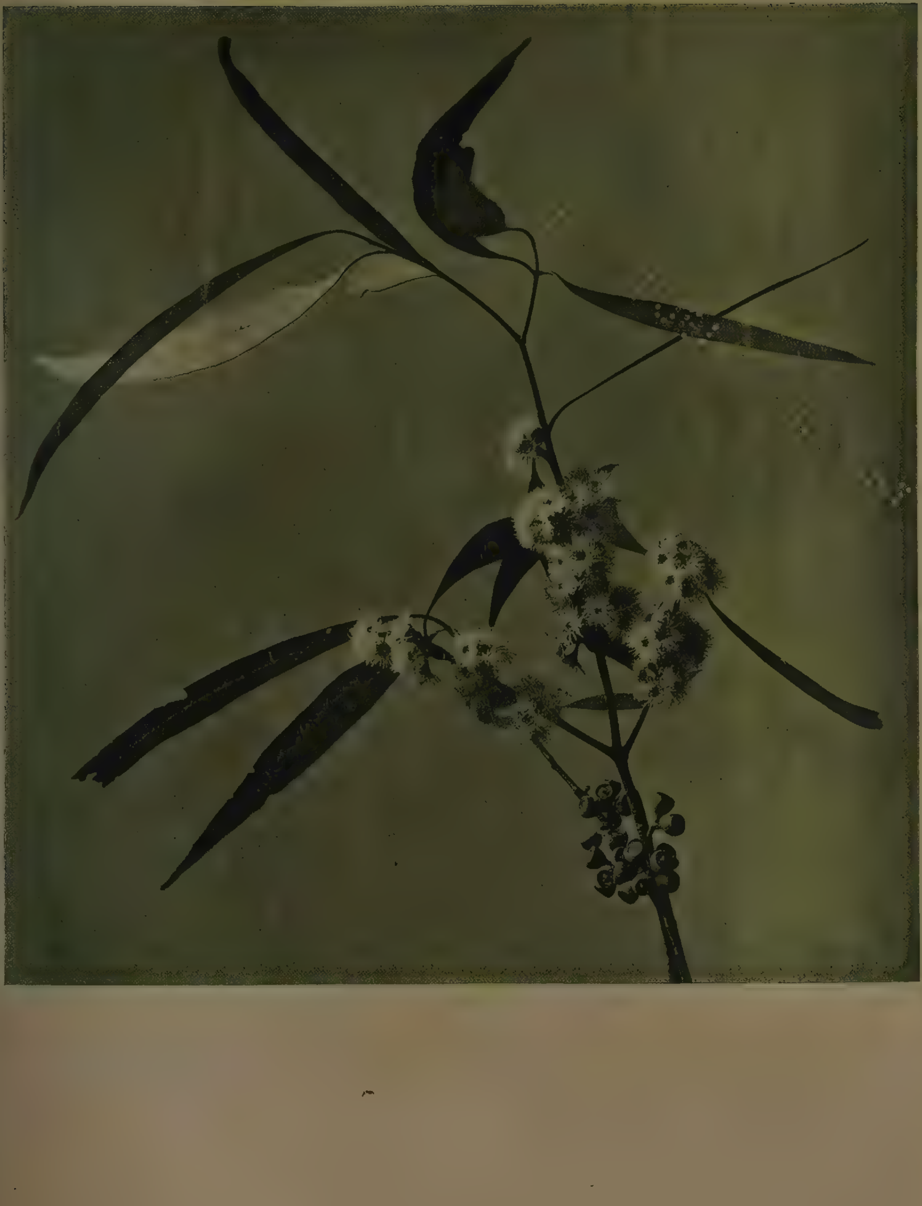


PLATE 43

E. RADIATA

(*Syn.* E. NUMEROSA)

River White Gum

Habitat - -	Victoria and New South Wales.
Bark - - -	Smooth and white, base slightly rough.
Leaves - - -	Narrow-lanceolate; veins semi-parallel.
Opercula - -	Hemispherical or lenticular.
Flowers - -	With very short pedicel, up to forty on slender terete peduncle.
Fruit - - -	Small, turbinate; summit very slightly domed.

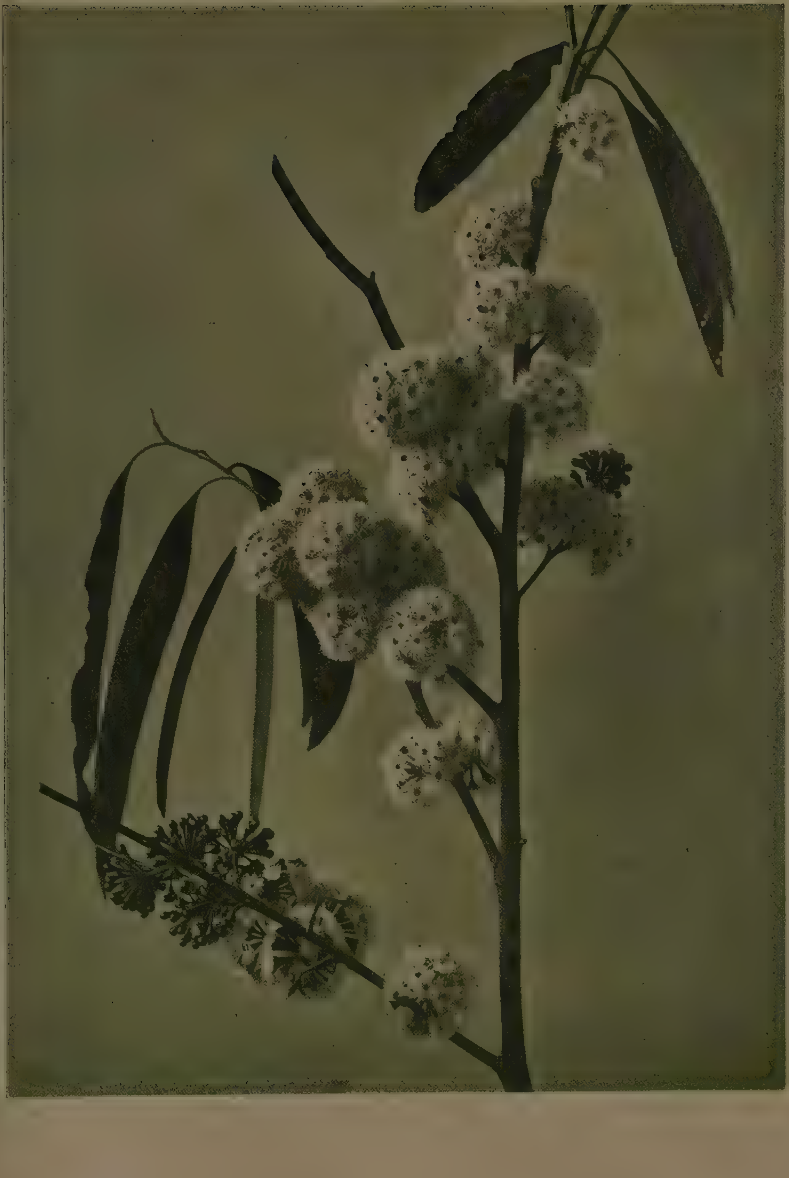


PLATE 44

E. OBLIQUA

Messmate

Messmate Stringybark

Habitat	Tasmania, Victoria, South Australia and New South Wales.
Bark	Rough and fibrous on the trunk and to the end of the branches.
Leaves	Broadly lanceolate; of all the species the most uniformly unsymmetrical.
Opercula	Hemispherical or faintly equilateral.
Flowers	From three to sixteen in an umbel, on a long slender peduncle.
Fruit	Truncate-ovoid; three to five valves, inserted.

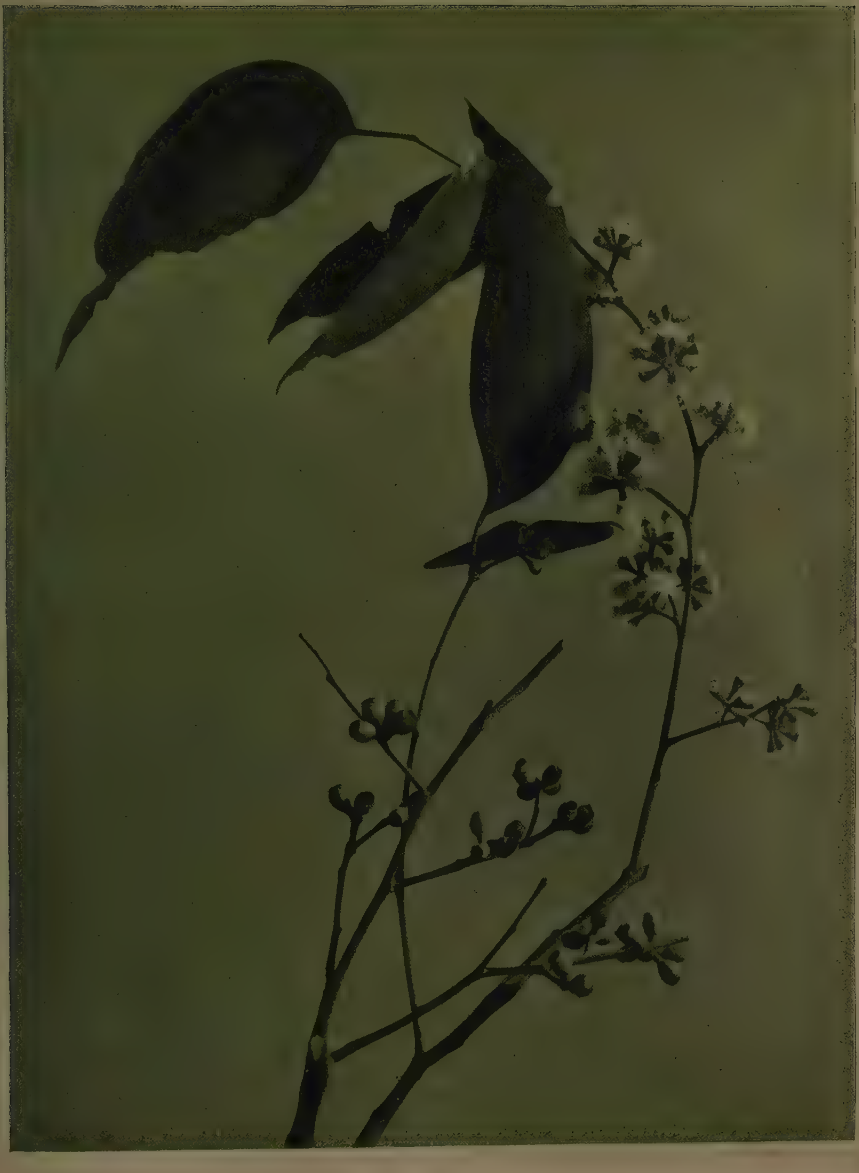


PLATE 45

E. RISDONI

Risdon Gum

Drooping Gum

Habitat - - Tasmania.

Bark - - - Smooth and clean, mottled in irregular patches with greys, blues and browns; branches decidedly pendulous.

Leaves - - - Juvenile foliage cordate and connate, often persisting to the flowering stage; mature foliage alternate and broadly lanceolate. with inconspicuous oblique veins.

Opercula - - Hemispherical; buds covered with white powdery bloom.

Flowers - - In umbels of six to twenty on long terete peduncle.

Fruit - - - Pyriform on short pedicel; four (occasionally three) celled with well-defined rim; ovary flat; valves flat or very slightly exserted.

PLATE 46

E. GLOBULUS

Blue Gum

HABITAT - -	Tasmania, Victoria and New South Wales.
BARK - - -	Smooth, decorticating in ribbons, rough and scaly at base; upper bark smooth.
LEAVES - - -	Lanceolate-acuminate, falcate.
OPERCULA - -	Large, flat, very umbonate, and covered with bloom; warty.
FLOWERS - -	Large; one, two or three, sessile on thick short peduncle; calyx tube angular, warty.
FRUIT - - -	Hemispherical and large, flat-topped; valves three to five, not exserted.

PLATE 47

E. ST. JOHNI

(*Syn.* E. GLOBULUS, *var.* ST. JOHNI)

Minor Blue Gum

Habitat	Victoria.
Bark	Smooth and white, scaly at base.
Leaves	Lanceolate-acuminate, slightly falcate; veins transverse.
Opercula	Lenticular, umbonate; slightly warty.
Flowers	Up to three, sessile or on short peduncle.
Fruit	Hemispherical, varying to conical; summit domed; two to five valves.

PLATE 48

E. BEHRIANA

Bull Mallee

HABITAT - -	Victoria, South Australia and New South Wales.
BARK - - -	Brown and flaky at base, smooth above.
LEAVES - - -	Ovate-lanceolate and acuminate; thick, and equally shiny on both sides.
OPERCULA - -	Hemispherical, sometimes slightly umbonate.
FLOWERS - -	In terminal panicles each flower very small; up to seven in umbel, almost sessile on terete or slightly-angled peduncle.
FRUIT - - -	Small, truncate-ovoid, flat-topped; valves inserted, narrow rim.

PLATE 49

E. OVATA

(*Syn.* E. PALUDOSA)

Swamp Gum

HABITAT - -	Victoria, Tasmania and New South Wales.
BARK - - -	Smooth on branchlets, rough and scaly at base.
LEAVES - - -	Ovate-lanceolate, veins transverse.
OPERCULA - -	Acute-conical, slightly rostrate.
FLOWERS - -	Almost sessile; up to seven on stout terete peduncle.
FRUIT - - -	Conical; prominent rim; valves exserted.

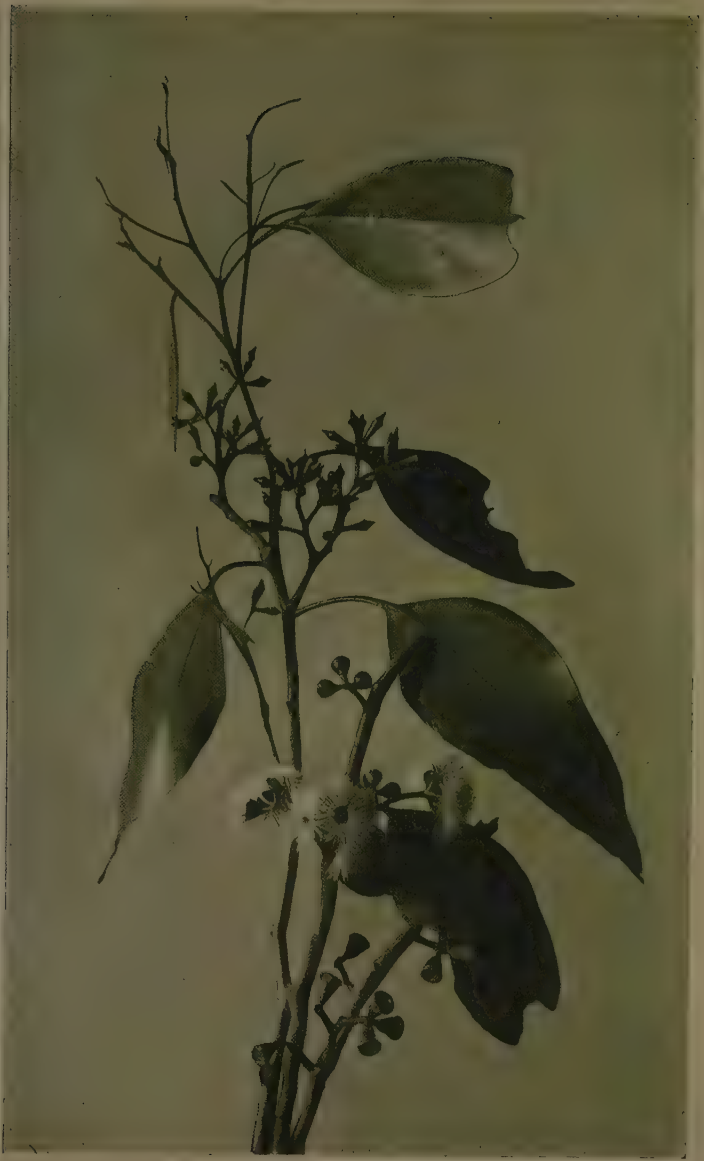


PLATE 50

E. ALPINA

Grampians Gum

HABITAT	Grampian Mountains (Victoria).
BARK	Stringy.
LEAVES	Ovate or shortly lanceolate; thick and leathery, with oblique veins; equally shiny on both sides.
OPERCULA	Thick and nearly hemispherical, broken in outline by many irregular warts.
FLOWERS	Axillary and lateral; calyx tube very warty; peduncle and pedicel quite absent.
FRUIT	Large and quite wooden, warty; the rim domes, with four to six domes exserted.

A well-defined species, whose natural distribution is limited to an area about forty miles long in the higher altitudes of a single mountain range.

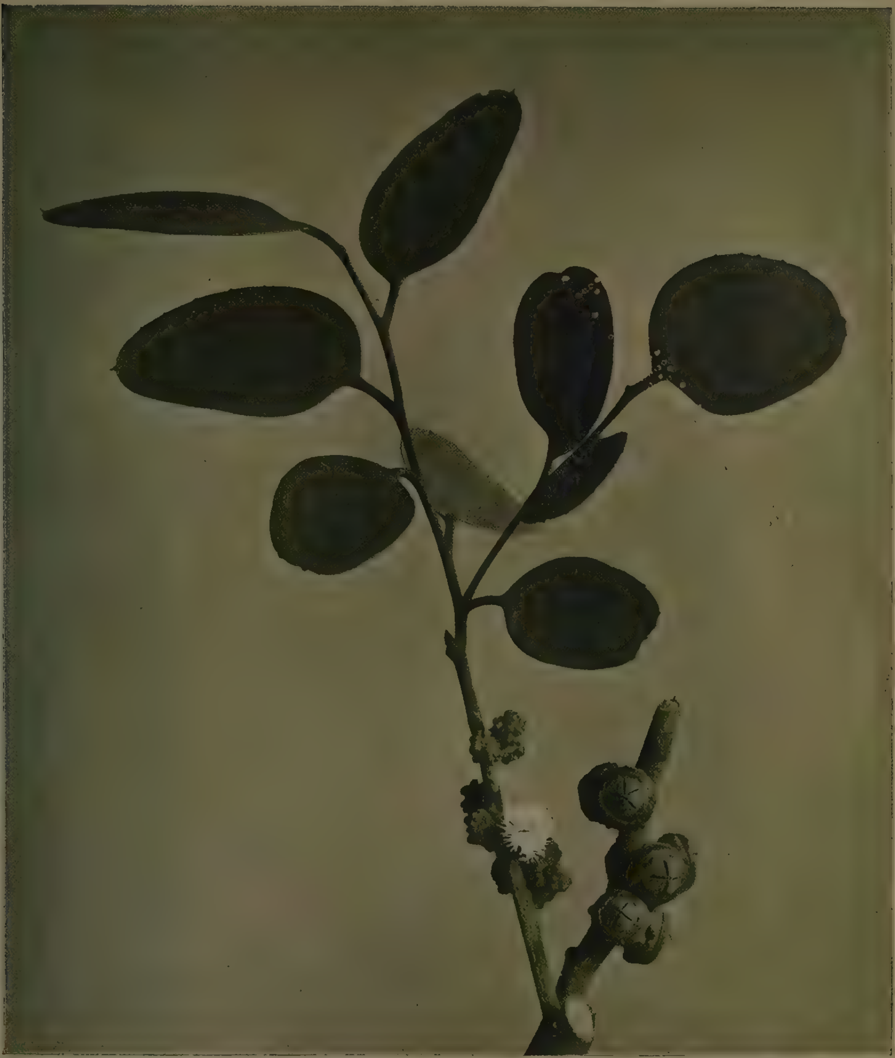


PLATE 51

E. CLADOCALYX

(*Syn.* E. CORYNOCALYX)

Sugar Gum

HABITAT - - South Australia and Victoria.
BARK - - - Smooth and generally much marked with brownish patches.
LEAVES - - - Lanceolate-acuminate; dull below, and paler than on upper side.
OPERCULA - - Broad and short.
FLOWERS - - Very profuse, usually in umbels of six to twelve on one peduncle.
FRUIT - - - Truncate-ovoid, often marked with longitudinal ribs; valves deeply inserted.

On account of its certain and rapid growth this is the most popular of all Eucalypts for ornamental and wind-break cultivation.

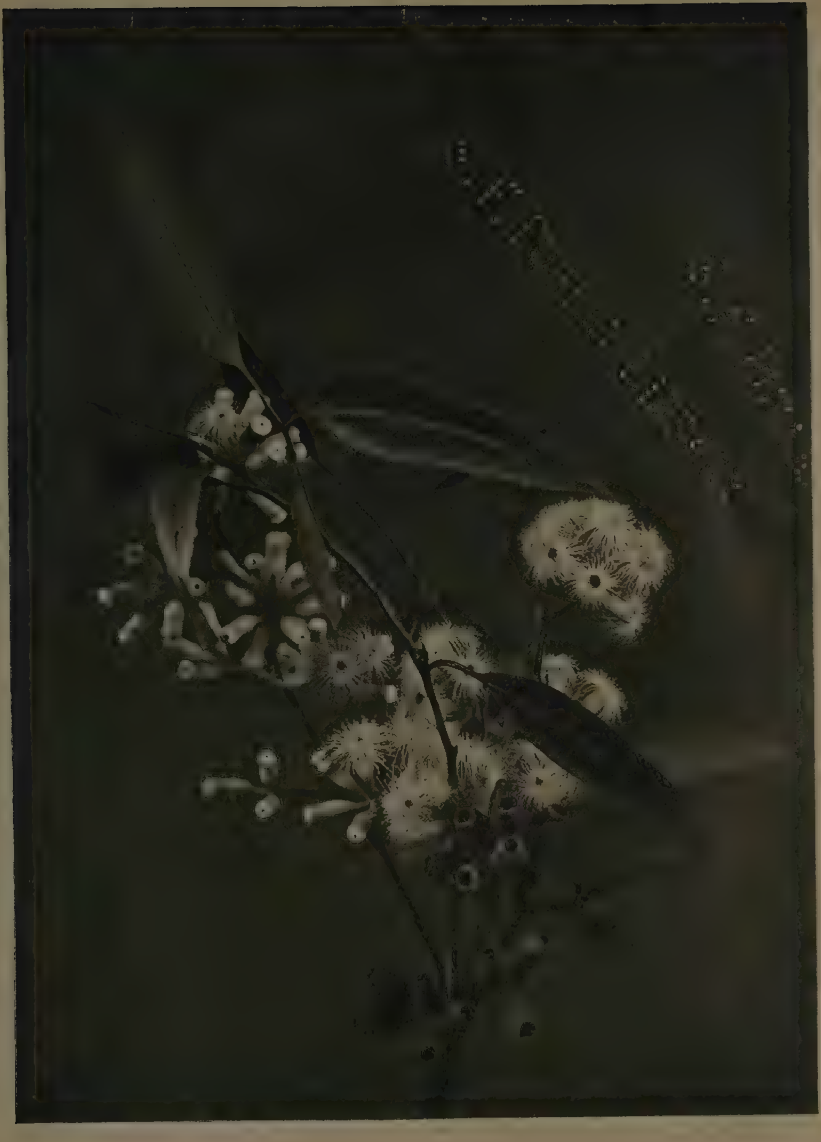


PLATE 52

E. LEUCOXYLON, *var.* MACROCARPA

Large-fruited Yellow Gum

HABITAT	South Australia.
BARK	Smooth.
LEAVES	Lanceolate-acuminate.
OPERCULA	Rostrate.
FLOWERS	Up to three, with slender pedicels and peduncles.
FRUIT	Large, merged into pedicel, distinctly turbinate; valves inserted.

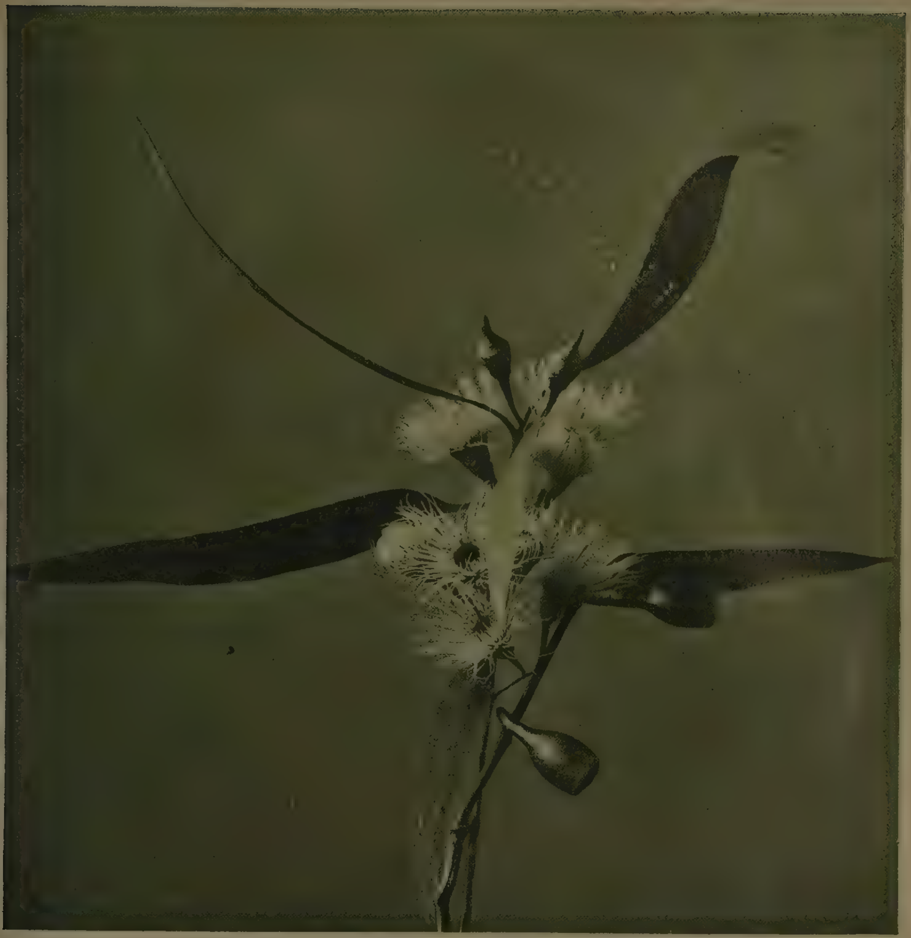


PLATE 53

E. LEUCOXYLON, *var.* MACROCARPA ROSEA

Large-fruited Yellow Gum

(Pink-flowered form)

Habitat - - South Australia.
Bark - - - Smooth.
Leaves - - - Lanceolate.
Opercula - - Rostrate.
Flowers - - With long pedicel and peduncle; pink, very pendulous and prominent on tree.
Fruit - - - Merged into pedicel; the whole turbinate in outline; valves inserted.

A beautiful garden tree, that grows quickly and flowers often in its third or fourth year. The blooms are profuse and prominent. It should be protected from high winds, as it is distinctly brittle.

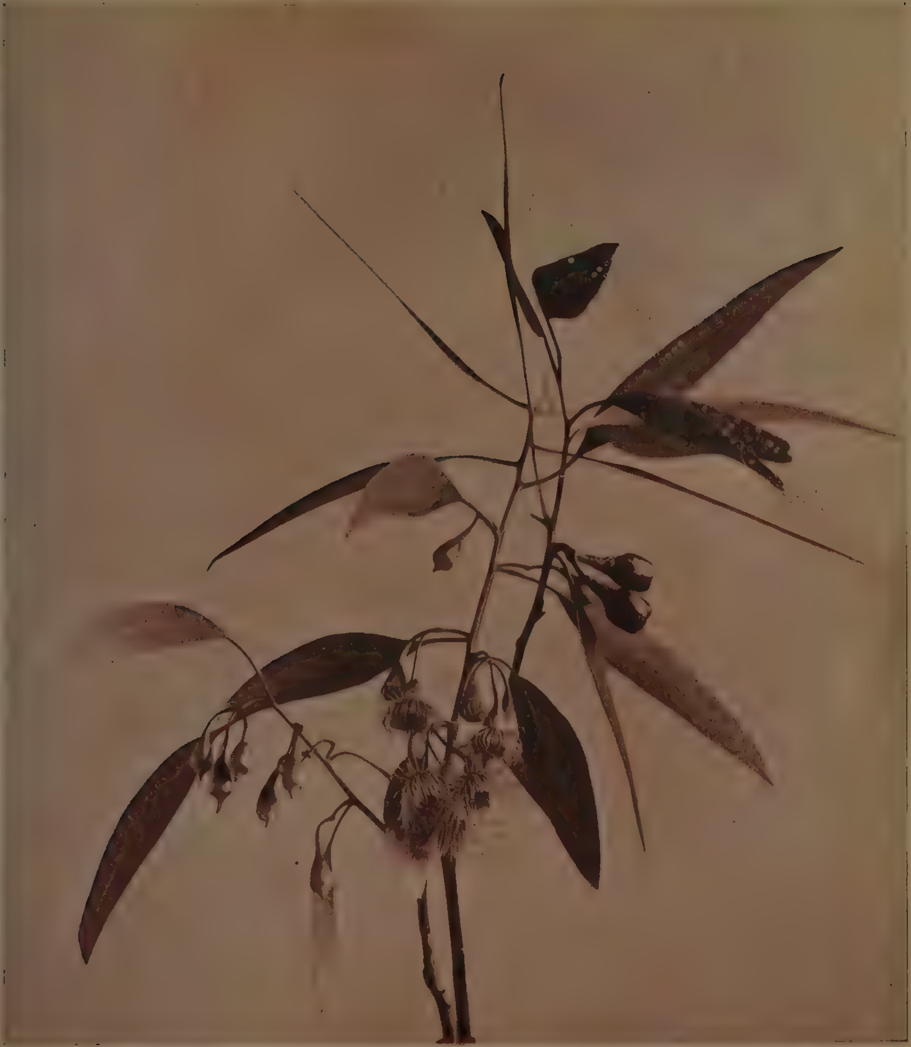


PLATE 54

E. COSMOPHYLLA

Scrub Gum

Habitat - - South Australia (only at Mount Lofty, Encounter Bay and Kangaroo Island).
Bark - - - - Smooth and patchy, grey.
Leaves - - - Coriaceous, dull, ovate to broadly lanceolate, falcate.
Opercula - - Large, hemispherical, umbonate.
Flowers - - Large; one to five on short thick peduncle.
Fruit - - - Semi-ovoid to hemispherical, with longitudinal ridges; four to five valves, inserted or slightly exserted.

PLATE 55

E. CALYCOGONA

Slender Mallee
Red Mallee

Habitat	New South Wales, Victoria and South Australia.
Bark	Smooth.
Leaves	Lanceolate; thick and coriaceous, with prominent midrib, but other veins ill-defined.
Opercula	Acute-pyramidal; buds definitely angular.
Flowers	Up to seven, sessile on short peduncle.
Fruit	Acute-pyramidal, definitely four-angled; valves inserted; the angular fruits are a distinct characteristic.

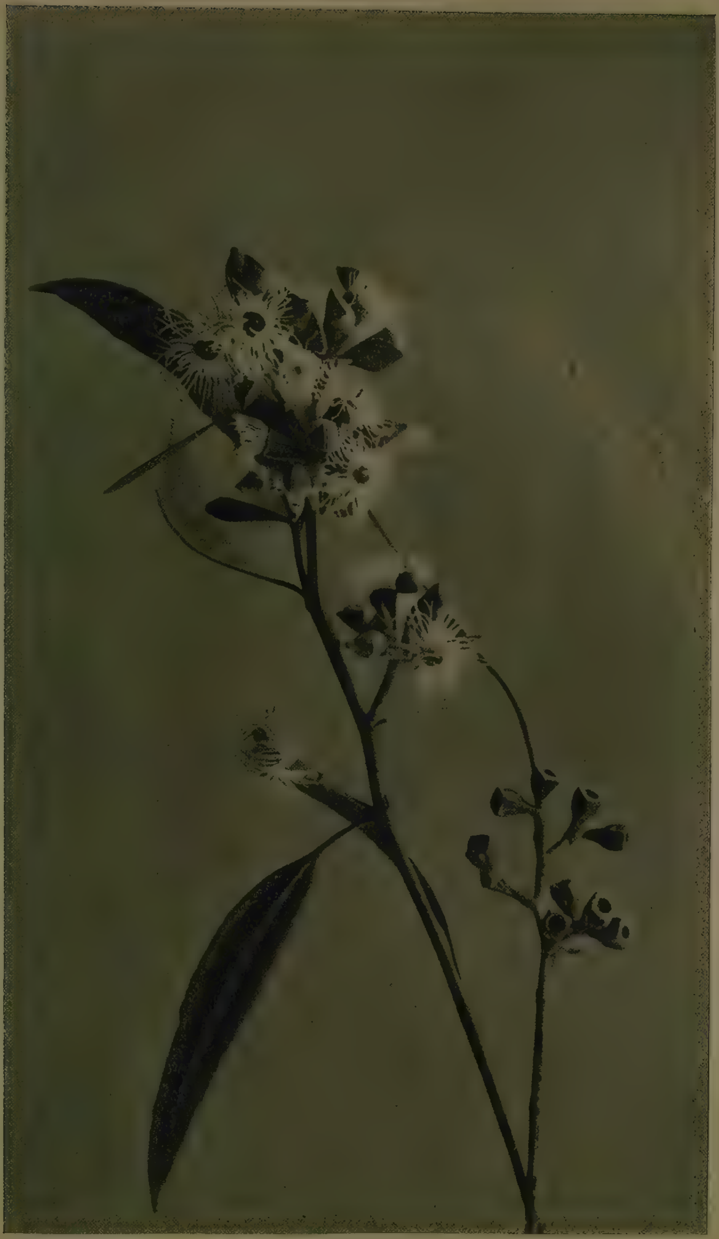


PLATE 56

E. DIVERSIFOLIA

(*Syn.* E. SANTALIFOLIA)

Sandal Gum

HABITAT - - Victoria, South Australia (mainland and Kangaroo Island).
BARK - - - Smooth, rough at base.
LEAVES - - - Narrow to broad-lanceolate.
OPERCULA - - Equilateral-conical.
FLOWERS - - Up to seven; short pedicels, short terete peduncle.
FRUIT - - - Hemispherical; domed top; valves very slightly exserted.

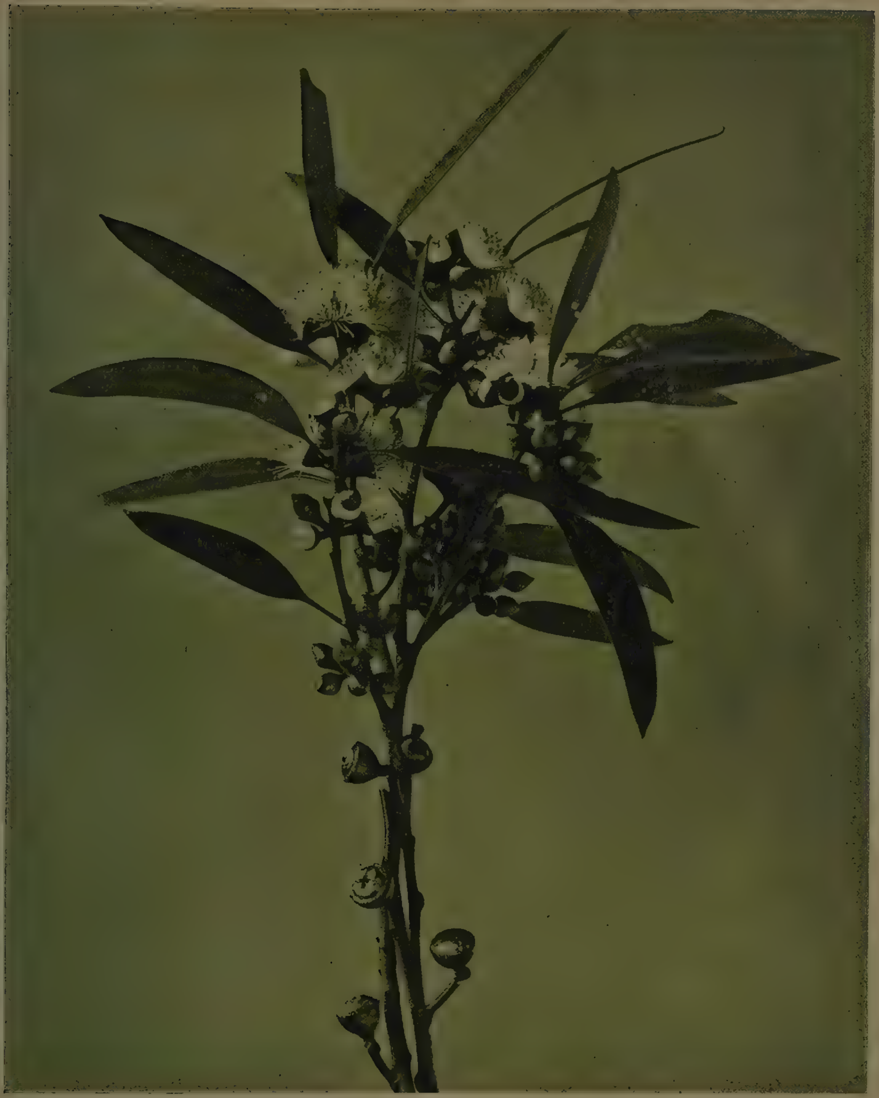


PLATE 57

E. TORQUATA

Coolgardie White Gum

HABITAT - - Inland districts of Western Australia.
BARK - - - Smooth and scaly.
LEAVES - - - Falcate, lanceolate-acuminate.
OPERCULA - - Very pointed, expanding at base to warty ribs.
FLOWERS - - Pink to crimson in colour; calyx tube with distinct warty collar; outer row of stamens pink; inner row of stamens cream.

PLATE 58

E. CORNUTA

Tree Yate

HABITAT	Southern portions of Western Australia.
BARK	Clean and smooth in the upper portions of the tree, but very dark and rugged at the base.
LEAVES	Lanceolate.
OPERCULA	Very long and horn-shaped.
FLOWERS	Pale-green; about six to twelve, sessile on an axillary peduncle.
FRUIT	Turbinate; generally three valves, rarely four or five.

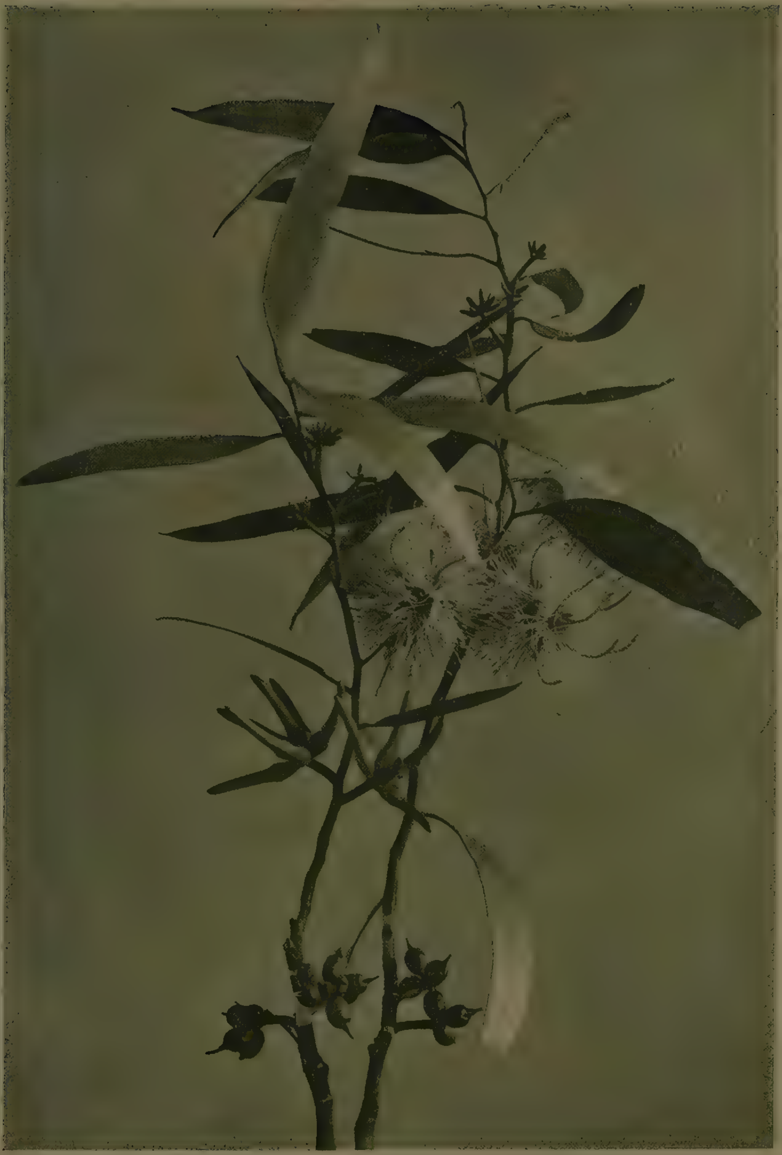


PLATE 59

E. MACRANDRA

Habitat - - Western Australia.
Bark - - - Smooth, decorticating in small irregular patches.
Leaves - - - Ovate-acuminate and lanceolate-acuminate.
Opercula - - Long and horn-shaped.
Flowers - - Greenish-yellow, with very prominent stile; about twenty, shortly pedicellate on long peduncle, which is round or slightly flattened.
Fruit - - - Pyriform; shortly pedicellate to form compact umbel; rim sharp, ovary flat, usually with three valves (occasionally four) which are flat or (in cultivation) raised to form prominent summit.

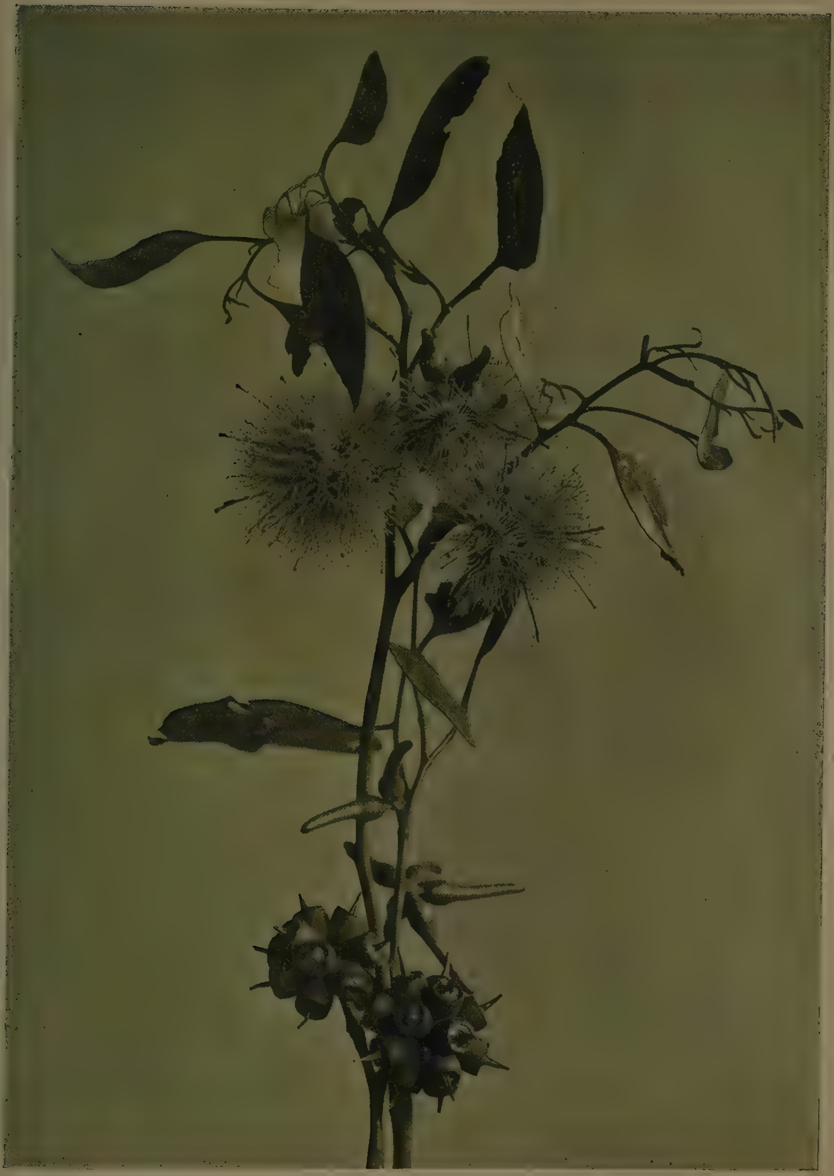


PLATE 60

E. PLATYPUS

Maalok

HABITAT - - Western Australia.
BARK - - - Smooth, flaky.
LEAVES - - - Thick, ovate, blunt; often coarsely crenate.
OPERCULA - - Long, horn-shaped.
FLOWERS - - Greenish-yellow, sometimes dark-red; sessile on thick, flat, broad peduncle.
FRUIT - - - Truncate-ovoid, flat-topped.

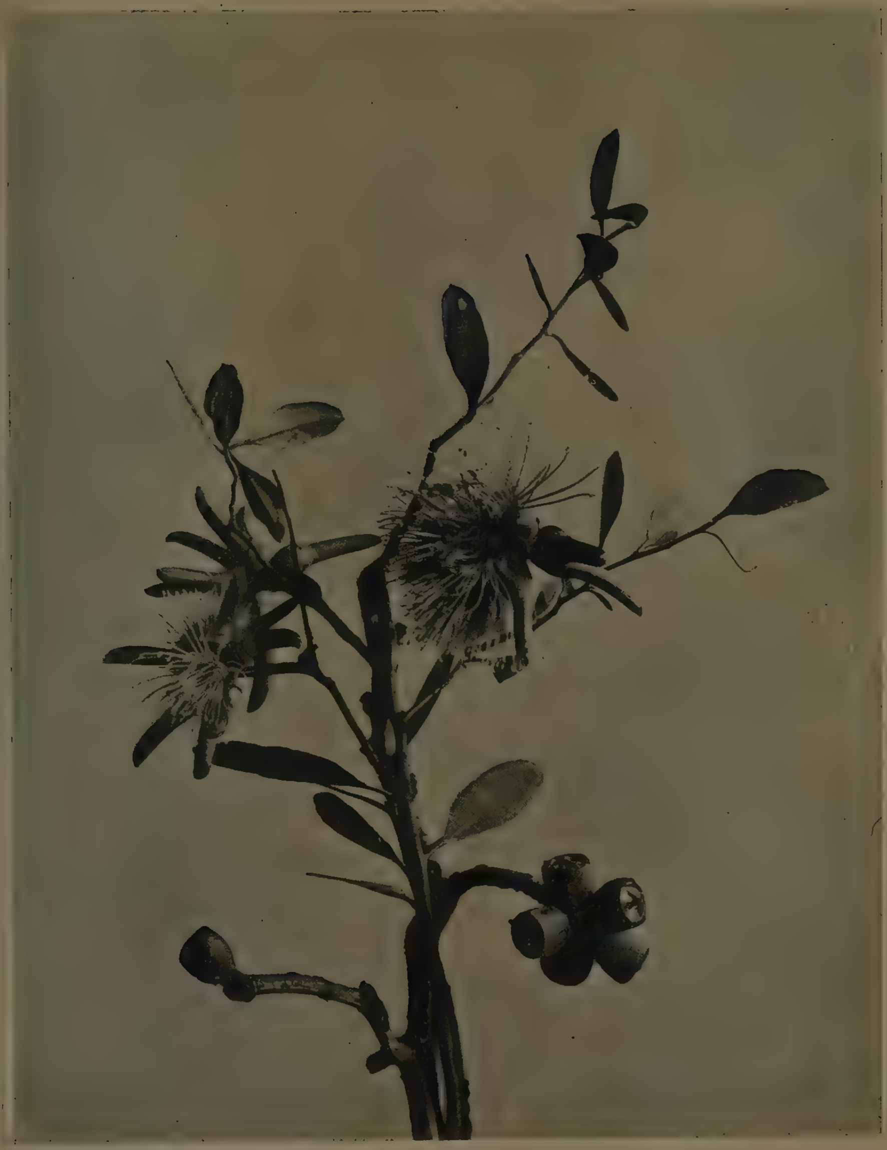


PLATE 61

E. PLATYPUS, *var.* ACUTIFOLIA

Pointed-leaf Maalok

HABITAT - -	Western Australia.
BARK - - -	Smooth.
LEAVES - - -	Lanceolate, thick, smooth and shiny.
OPERCULA - -	Long and rostrate, almost terete.
FLOWERS - -	Red or green; from three to seven on thick broad peduncle.
FRUIT - - -	Truncate-ovoid; distinct rim, compressed peduncle.

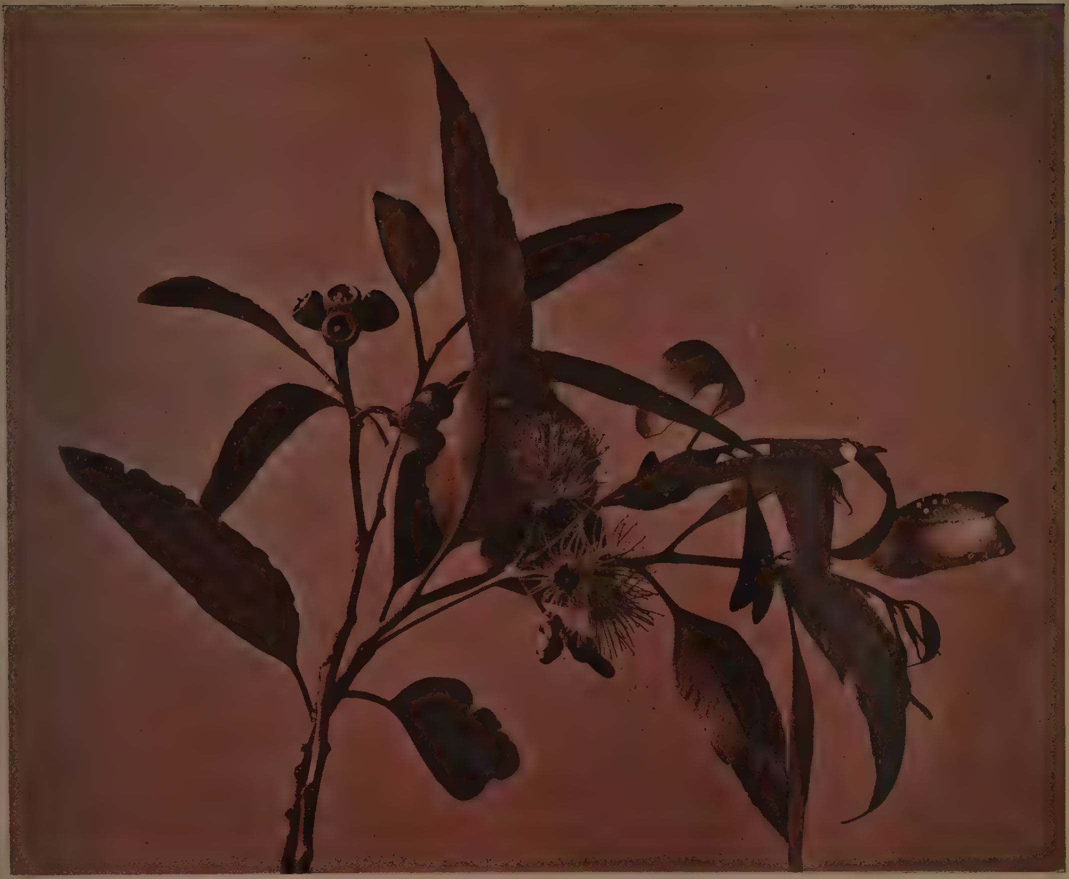


PLATE 62

E. LEHMANNI

Bushy Yate

HABITAT - - Western Australia.
BARK - - - Rough and reddish at base, smooth above; decorticating in irregular patches.
LEAVES - - - Ovate to oblong, thick.
OPERCULA - - Very long and cylindrical, often horn-shaped.
FLOWERS - - Greenish-yellow; twenty or more on thick flattened peduncle, recurved.
FRUIT - - - Large and aggregated; valves exserted and very prominent.

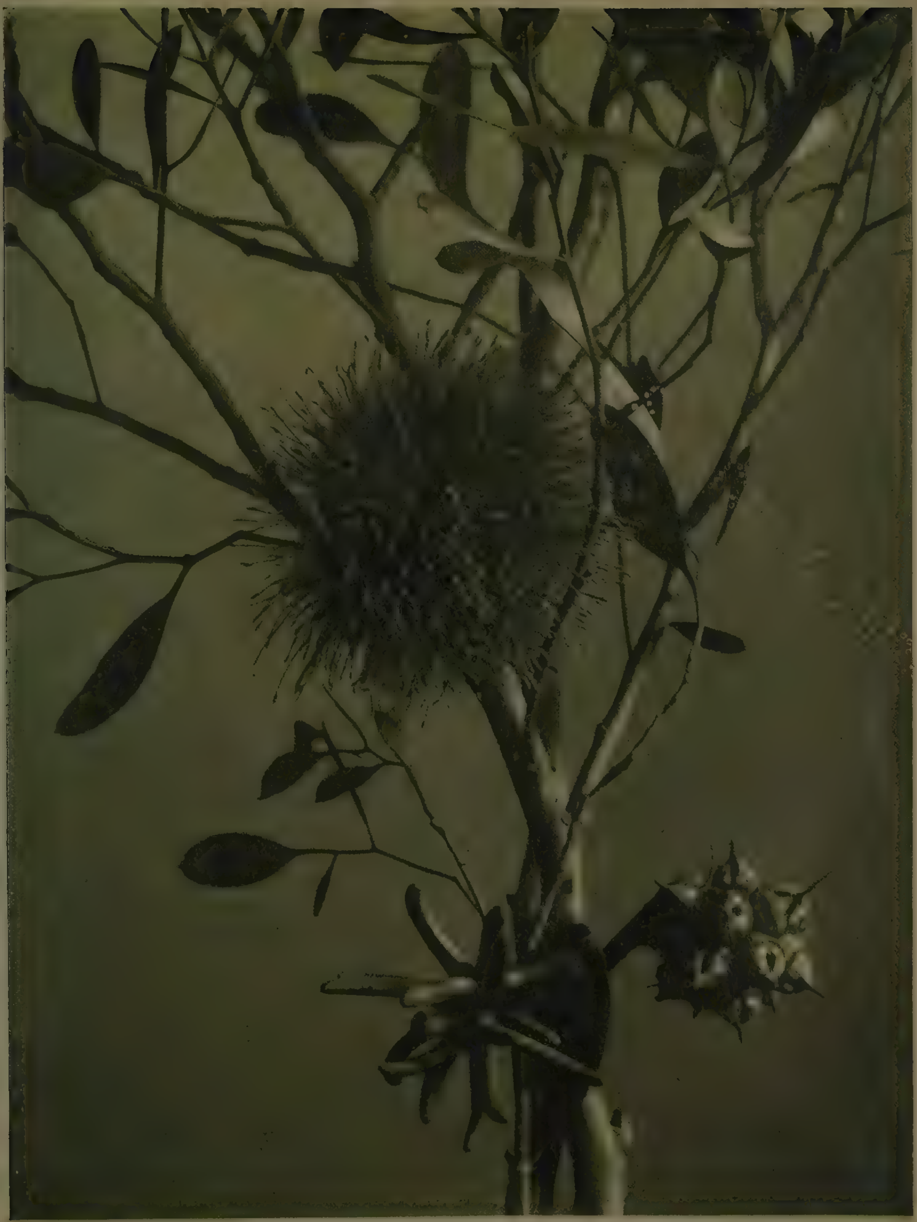


PLATE 63

E. OCCIDENTALIS

Mallet-wood

Flat-topped Yate

HABITAT - - Western Australia.
BARK - - - Rough, hard, persistent.
LEAVES - - - Lanceolate-acuminate, falcate.
OPERCULA - - Acute-conical.
FLOWERS - - Pendulous; up to three on slender pedicel and peduncle.
FRUIT - - - Urceolate, oblong; narrow rim; valves exserted.

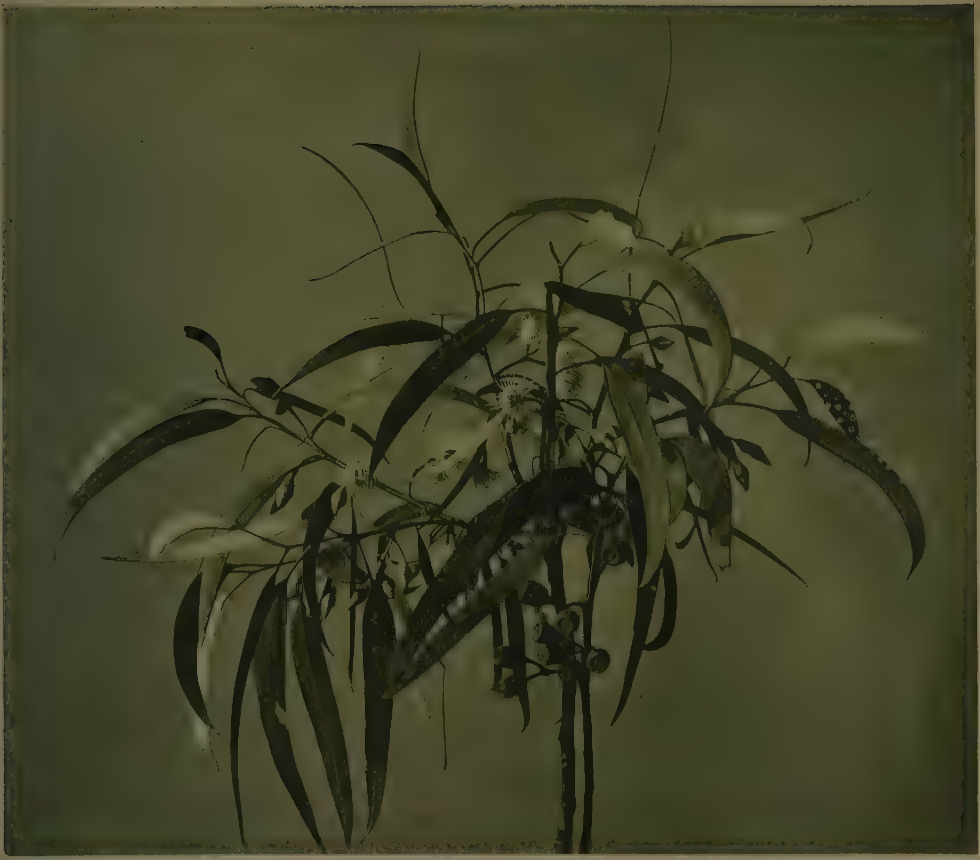


PLATE 64

E. RUDIS

White or River Gum of Western Australia
Swamp Gum of Western Australia

HABITAT - -	Western Australia.
BARK - - -	Rough and scaly on trunk, smooth and white on branches.
LEAVES - - -	Ovate-lanceolate or narrow-lanceolate, curved.
OPERCULA - -	Equilateral-conical.
FLOWERS - -	From four to eight, with short pedicels on longer and slightly flattened peduncle.
FRUIT - - -	From three- to five-celled, with valves exserted.

PLATE 65

E. ERYTHRONEMA

(*Syn.* E. CONOIDEA)

Mount Lindsay Gum

HABITAT	Western Australia.
BARK	Smooth.
LEAVES	Ovate-lanceolate, coriaceous, dark green.
OPERCULA	Equilateral-conical.
FLOWERS	Deep red, sometimes yellow; from three to four on short stout peduncle.
FRUIT	Conical, flat-topped; valves slightly exserted.

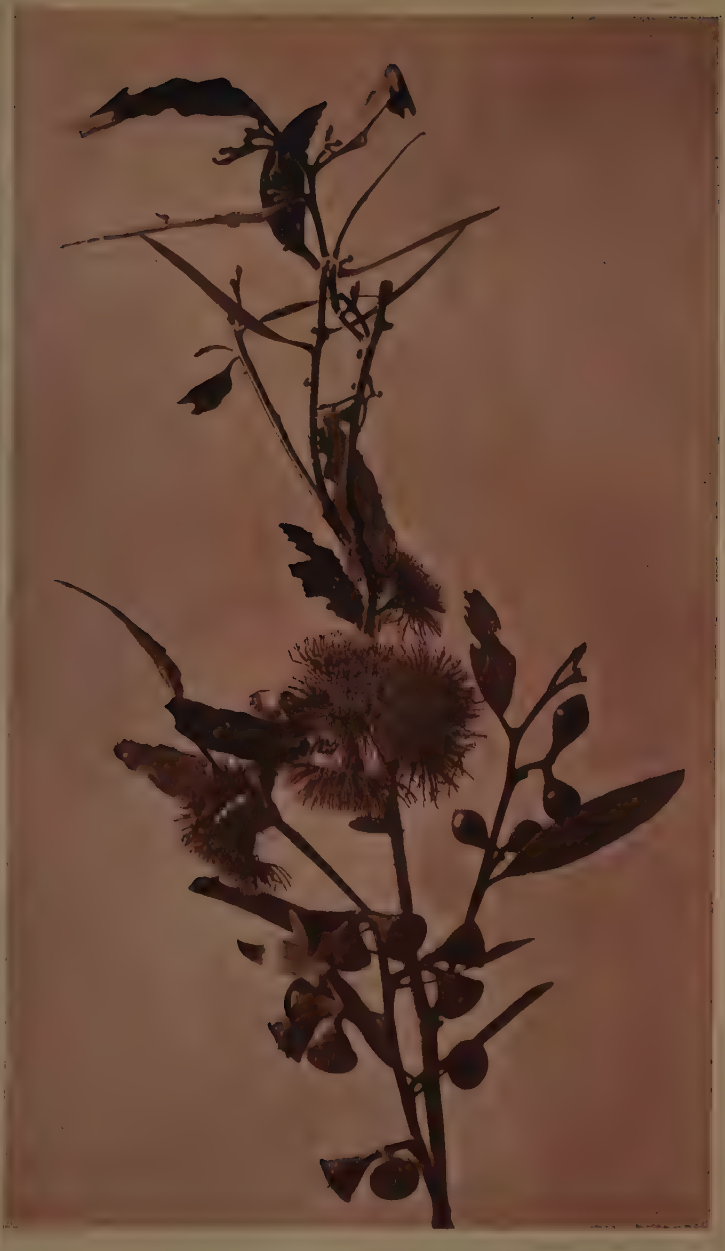


PLATE 66

E. PLEUROCARPA

(*Syn.* E. TETRAGONA)

Mealy Gum

HABITAT - -	Western Australia.
BARK - - -	Smooth, white.
LEAVES - - -	Ovate, white.
BRANCHLETS -	Angular.
OPERCULA - -	Hemispherical or lenticular.
FLOWERS - -	Stamens distinctly grouped into four clusters or bundles; calyx rim four-toothed.
FRUIT - - -	Truncate-ovoid and four-angled.

A small tree of stunted growth; named by R. Brown *Eudesmia tetragona.*

The grouping of the stamens appears to be an attempt to form petals, and is a characteristic of the species.

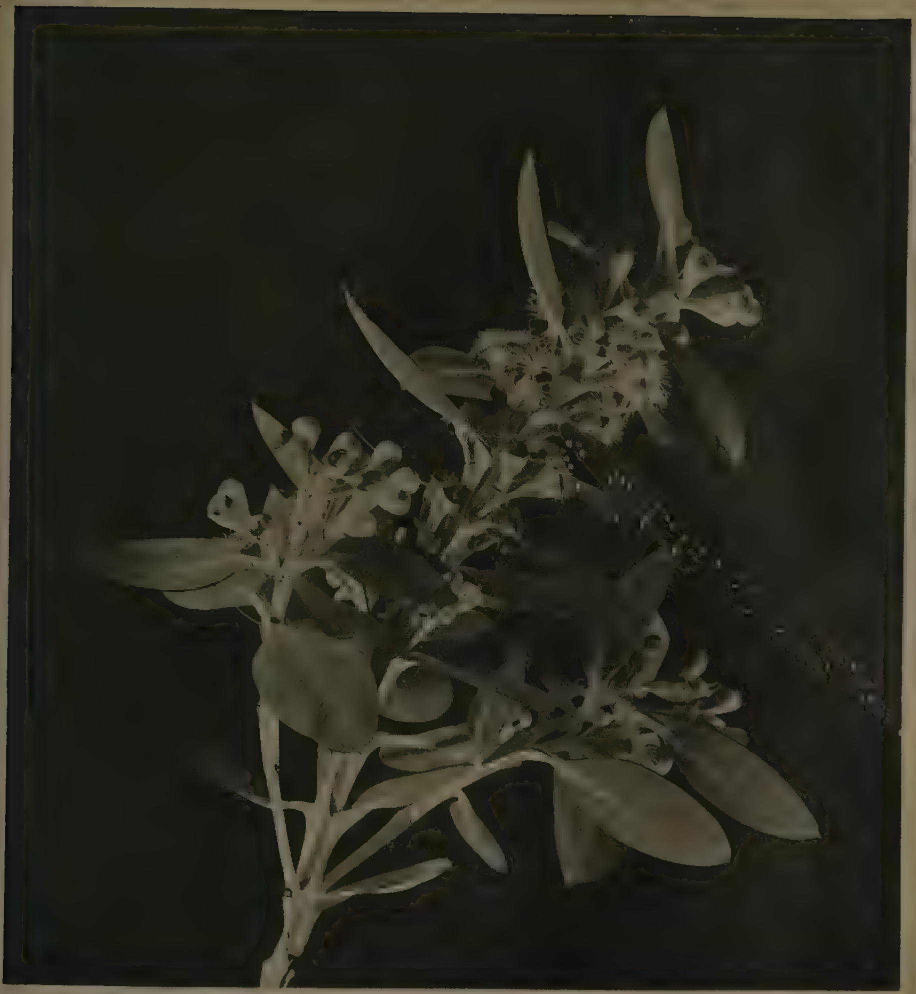


PLATE 67

E. PYRIFORMIS

Ooldea Mallee
Large-fruited Mallee

HABITAT - -	The arid regions of South Australia and Western Australia.
BARK - - -	Light-brown, smooth.
LEAVES - - -	Thick and firm on a long stalk; broadly lanceolate.
OPERCULA - -	Thick and large, hemispherical or pointed, and deeply furrowed and rugged; covered with a whitish bloom.
FLOWERS - -	Very large; crimson or yellow filaments, long stout peduncle; from one to three flowers on rigid pedicel.
FRUIT - - -	Very large and wooden, with much-constricted rim; corrugated and rugged.

A stunted shrub.

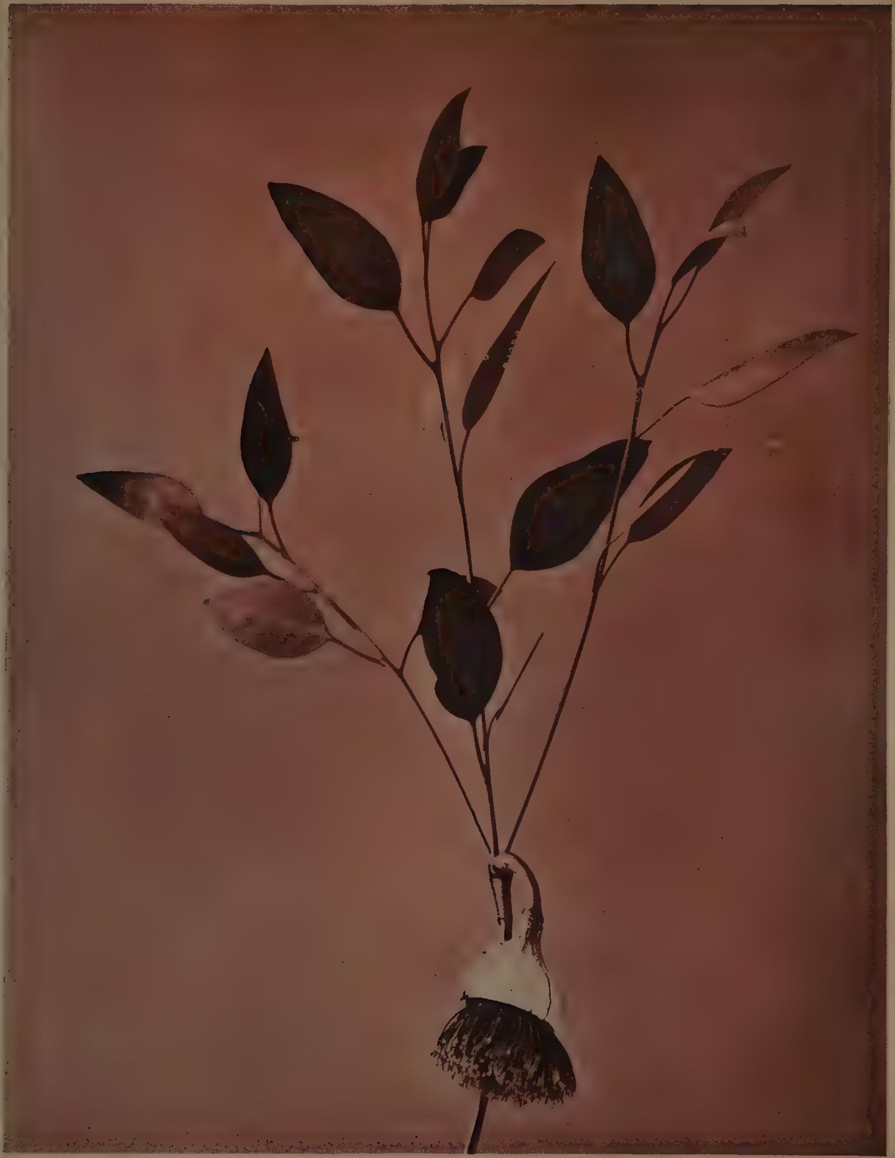


PLATE 68

E. MACROCARPA

Desert Gum
Blue Bush
Rose of the West

HABITAT - -	Arid portions of Western Australia.
LEAVES - - -	Stiff, large ovate; both stalks and leaves silvery-grey and very glaucous.
OPERCULA - -	The largest in any Eucalypt; conical and pointed; often one-and-a-half inches across when green, and quite wooden when dry.
FLOWERS - -	Deep pink; axillary to the leaves, growing singly on a stout peduncle; arranged one, two, three or four round the branchlets; each bloom is often five inches in diameter.
FRUIT - - -	Large and wooden; five valves, two to three-and-a-half inches across.

A small tree of the Mallee type, straggly in appearance and usually growing in thickets. Of all Eucalypts this one has the most beautiful and striking flowers. The profuse silvery leaves are closely grouped together, and the large pink flowers are set amongst them.

PLATE 69

E. PREISSIANA

HABITAT - - Western Australia.
BARK - - - Smooth.
LEAVES - - - Ovate, thick.
OPERCULA - - Obtuse-conical.
FLOWERS - - Sessile on thick flattened peduncle.
FRUIT - - - Acute-conical; summit depressed; valves numerous and inserted.

A small tree with large flowers, yellower in colour than those of any other Eucalypt.

PLATE 70

E. TETRAPTERA

Habitat	Western Australia.
Bark	Smooth, white, rough at base.
Leaves	Very thick and rigid, broadly lanceolate.
Opercula	Pyramidal, red-coloured.
Flowers	Very large, with bright red calyx; filaments white with purplish anthers; the calyx tube is pyramidal in shape, with each angle extended into a well-defined wing; the peduncle is thick, flattened and winged; during inflorescence the calyx becomes bright red.
Fruit	Large, long and wooden, four-winged like the calyx tube; valves inserted.

A shrubby tree up to twenty feet high.

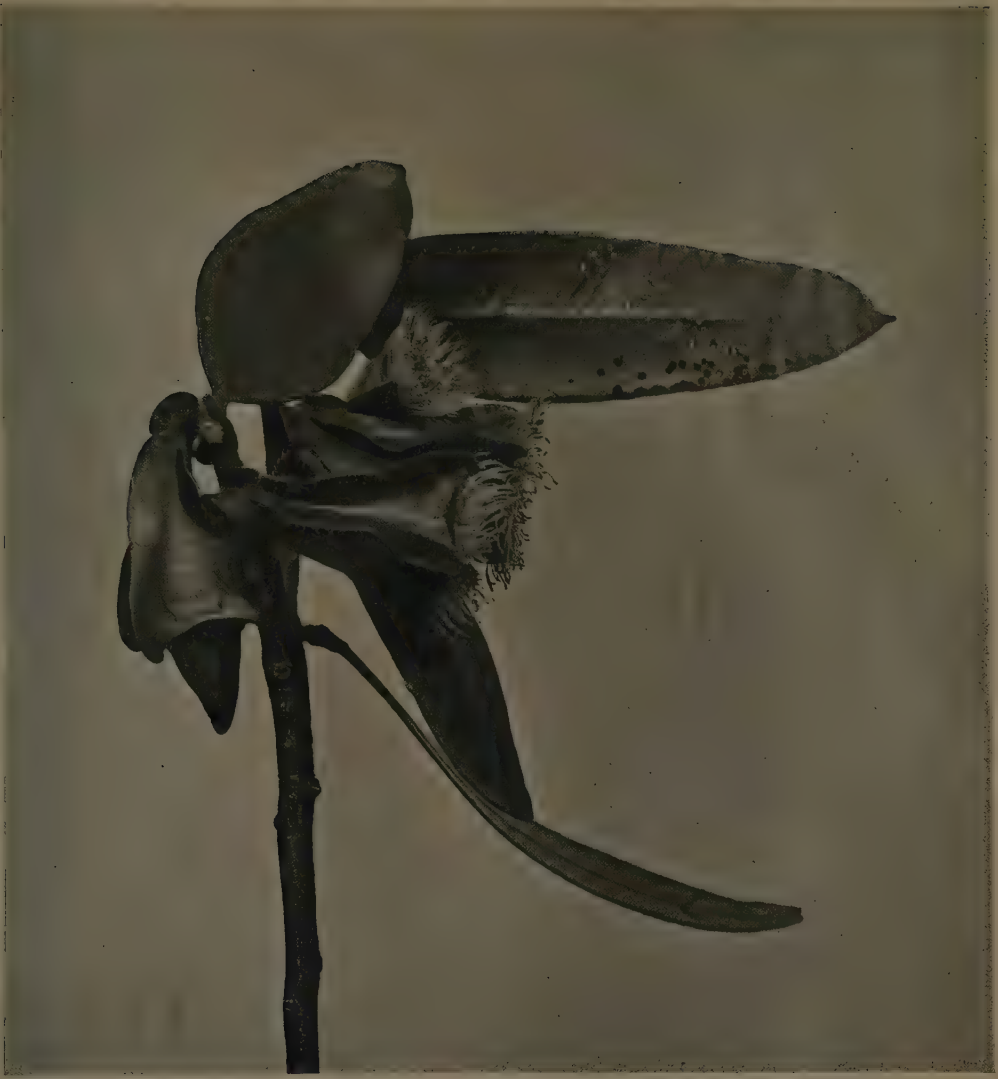


PLATE 71

E. MARGINATA

Jarrah

Habitat	Coastal regions of Western Australia.
Bark	Persistent, rough, fibrous.
Leaves	Lanceolate, slightly falcate; shiny above and dull below.
Opercula	Acute-conical or acuminate.
Flowers	From four to eight, on terete or flattened peduncle.
Fruit	Large, truncate-ovoid or spherical; valves generally three, very slightly exserted, if at all.

The timber of this tree is of world-wide reputation. It has wonderful endurance above and below ground and under water. When seasoned it is often indistinguishable from Mahogany.

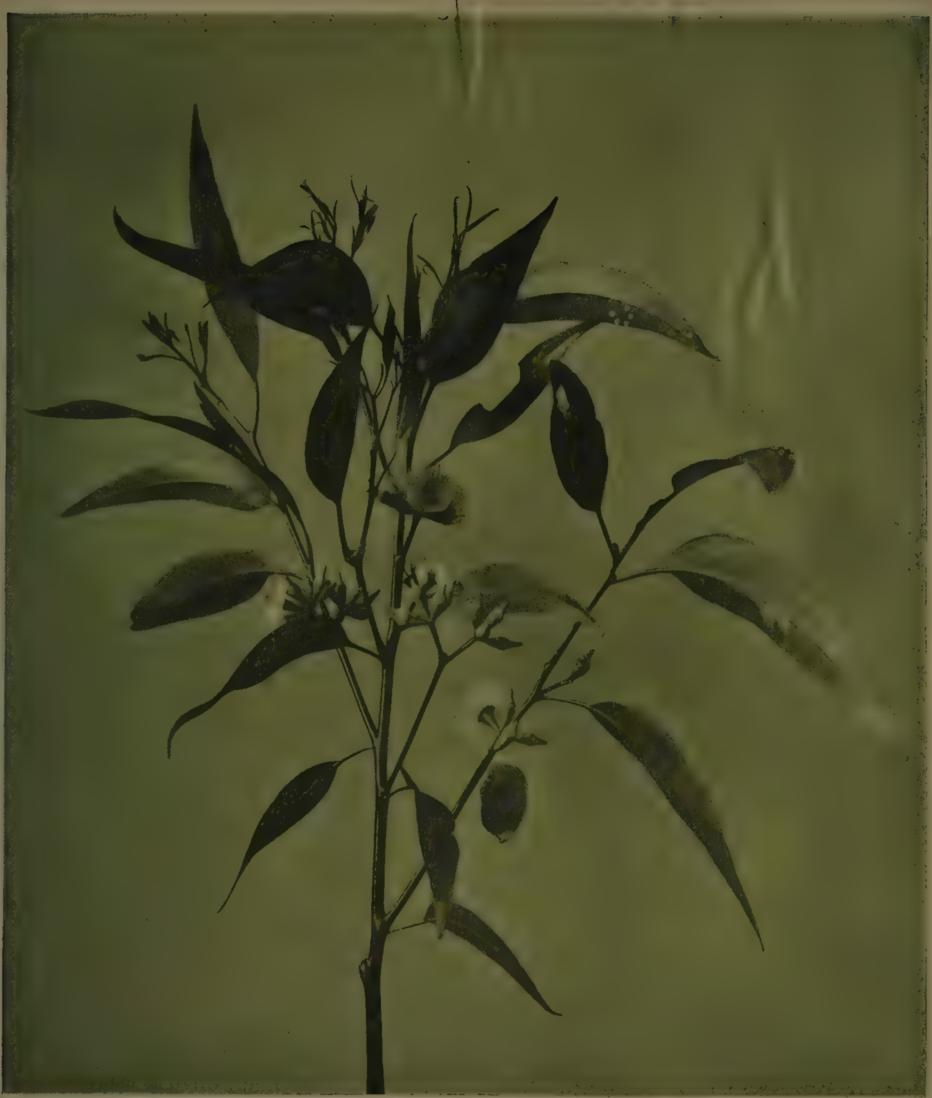


PLATE 72

E. DIVERSICOLOR

(*Syn.* E. COLOSSEA)

Karri

Habitat	Coastal regions of Western Australia.
Bark	Smooth, yellowish and grey; rough and flaky at base; persistent and fibrous.
Leaves	Ovate, lanceolate-acuminate; paler below than above.
Opercula	Obtusely conical, smaller than in *E. marginata.*
Flowers	From three to six on a long slender peduncle; short pedicels.
Seeds	Usually smaller than in *E. marginata.*
Fruit	Turbinate; valves slightly exserted.

PLATE 73

E. FICIFOLIA

Scarlet-flowered Gum

HABITAT - - A small area (about four hundred acres) in the southern portion of Western Australia.
BARK - - - Persistent and fibrous.
LEAVES - - - Lanceolate-acuminate, with transverse veins.
OPERCULA - - Very slightly domed; very thin and flexible.
FLOWERS - - Prominent panicles of all shades from white (rare) to scarlet and crimson.
FRUIT - - - Large and wooden, varying in outline from almost spherical to truncate-ovoid and urceolate; ovary much depressed, forming hard wooden rim.

A favourite horticultural tree in the Eastern States, and in appearance indistinguishable from *E. calophylla,* the only point of difference being that it has amber-coloured winged seeds, while *E. calophylla* has black and wingless seeds. The finest garden species, as the flowers are of a gorgeous colour and very prominent above the dark-green foliage. Much finer specimens are to be found in cultivation than in its restricted native habitat.

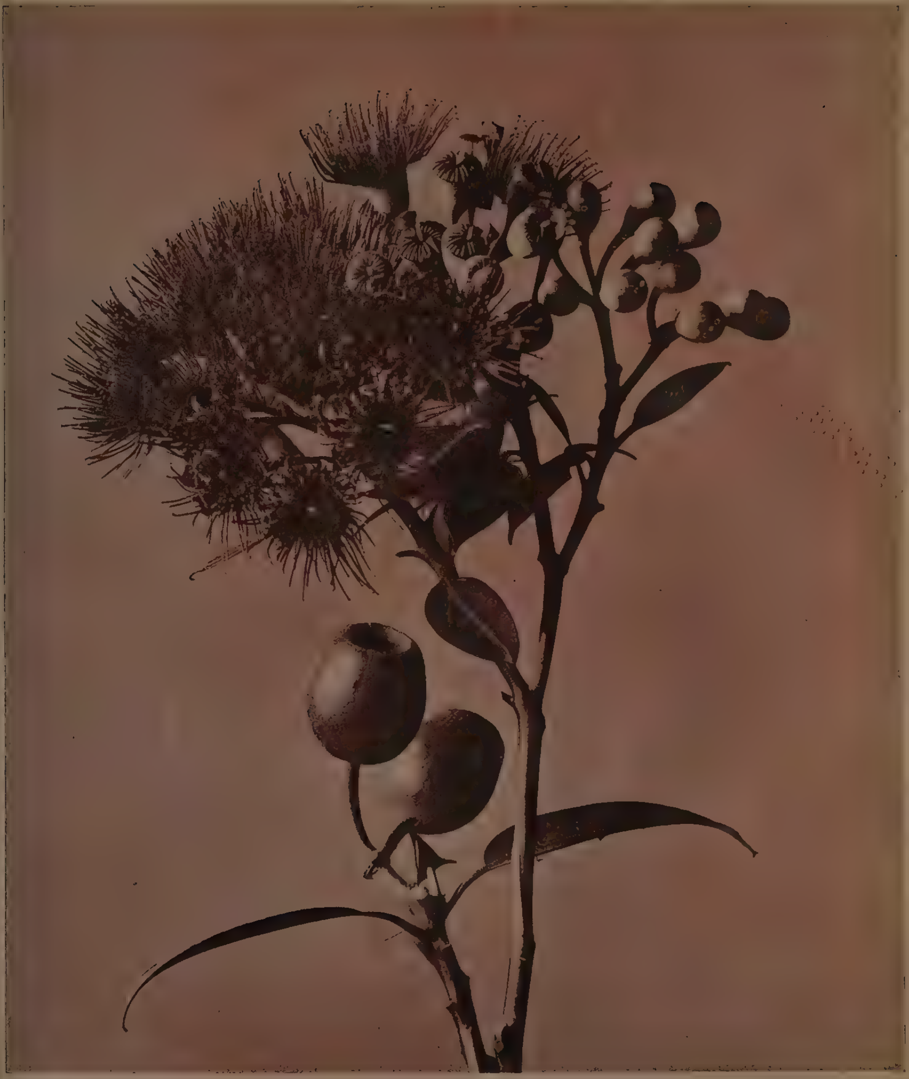


PLATE 74

E. CALOPHYLLA

Marri

Western Australian Red Gum

HABITAT - - Western Australia.
BARK - - - Box-like, generally quite tesselated in appearance.
LEAVES - - - Lanceolate and acuminate; firm with regular transverse veins, the intramarginal one close to the edge.
OPERCULA - - Obtuse-conical or umbonate.
FLOWERS - - In very prominent corymbose panicles.
FRUIT - - - Large, with black wingless seeds; often urceolate in comparison with *E. ficifolia.*

A tall, sturdy tree, well distributed over the coastal regions of Western Australia. This "Red" Gum is so called because of its abundant kino exudations; the Red Gum of the Eastern States (*E. rostrata*) gets its name from its red timber.

PLATE 75

E. CALOPHYLLA, *var.* ROSEA

Pink-flowered Marri

A variety of *E. calophylla,* indistinguishable from it in every respect except the colour of its flowers; these vary from the palest shell-pink to deepest coral-pink and dark-red. A very handsome sturdy tree, which flourishes in cultivation.

Cultivated specimens of this tree are prone to lose the colour of their flowers with age. Whether this is due to soil, climate or hereditary influence is not yet determined.

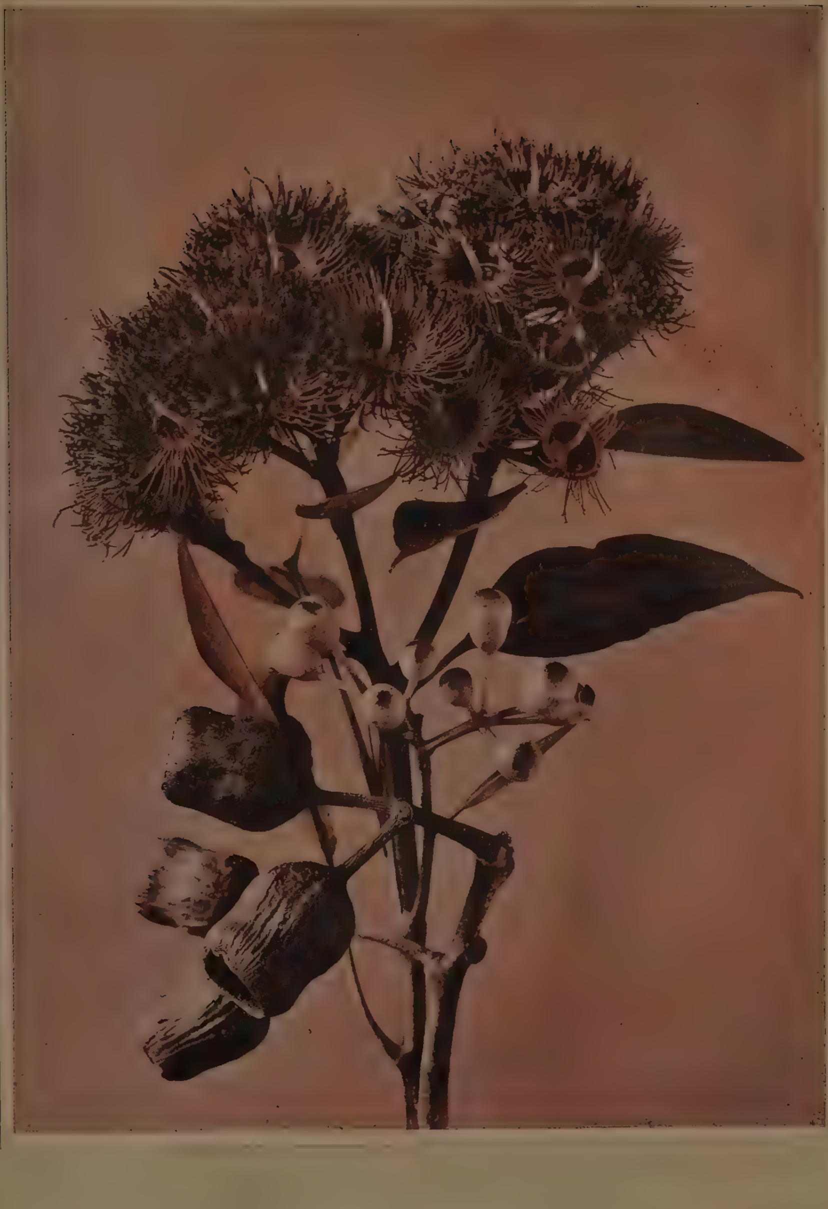


PLATE 76

E. MEGACARPA

Bullich

Blue Gum of Western Australia

Habitat	Southern regions of Western Australia.
Bark	Smooth, white and grey.
Leaves	Lanceolate-acuminate.
Opercula	Obtuse-conical or umbonate.
Flowers	Up to three on long flattened peduncle; pedicels very short.
Fruit	Hemispherical or semi-ovoid; summit flat, with five valves (less frequently four or six).

PLATE 77

E. LONGICORNIS

Morrel

HABITAT - -	Inland regions of Western Australia.
BARK - - -	Dark grey; narrow-furrowed or hard Box-like bark on lower parts of tree.
LEAVES - - -	Narrow, falcate, glabrous.
OPERCULA - -	Long and terete, with expanded base.
FLOWERS - -	Set on slender pedicel.
FRUIT - - -	Semi-ovoid; decided rim; valves exserted and joined together at tip.

A Mallee type of tree.

PLATE 78

E. OBCORDATA

Laurel Gum

Habitat	Northern portions of Western Australia.
Bark	Smooth and grey.
Leaves	Obcordate or broadly oval; very thick and equally coloured on both sides.
Opercula	Rostrate or almost terete, with extended base.
Flowers	Dull red; from five to seven on long curved and flattened peduncle.
Fruit	Mostly five-celled, conical and semi-ovoid.

A small tree growing in dense thickets.

PLATE 79

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[In botany, the convention is to write generic names with a capital letter (e.g., *Eucalyptus*) and to use only the initial letter when the name of the genus is clearly understood, as in the matter on pages 7-12 and in the descriptions of the plates. Specific names should begin with a small letter (e.g., *E. acacioides*) except when derived from the name of a person (e.g., *E. Macarthuri*). Both generic and specific names are usually printed in *italic* type when they occur in a sentence; but in tabular form (as in an index) or when displayed in headings (see descriptions of the plates) the convention is frequently departed from for the sake of appearance.]

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